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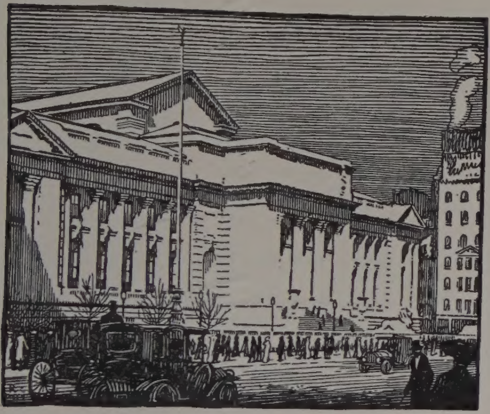

AUGUST 1927

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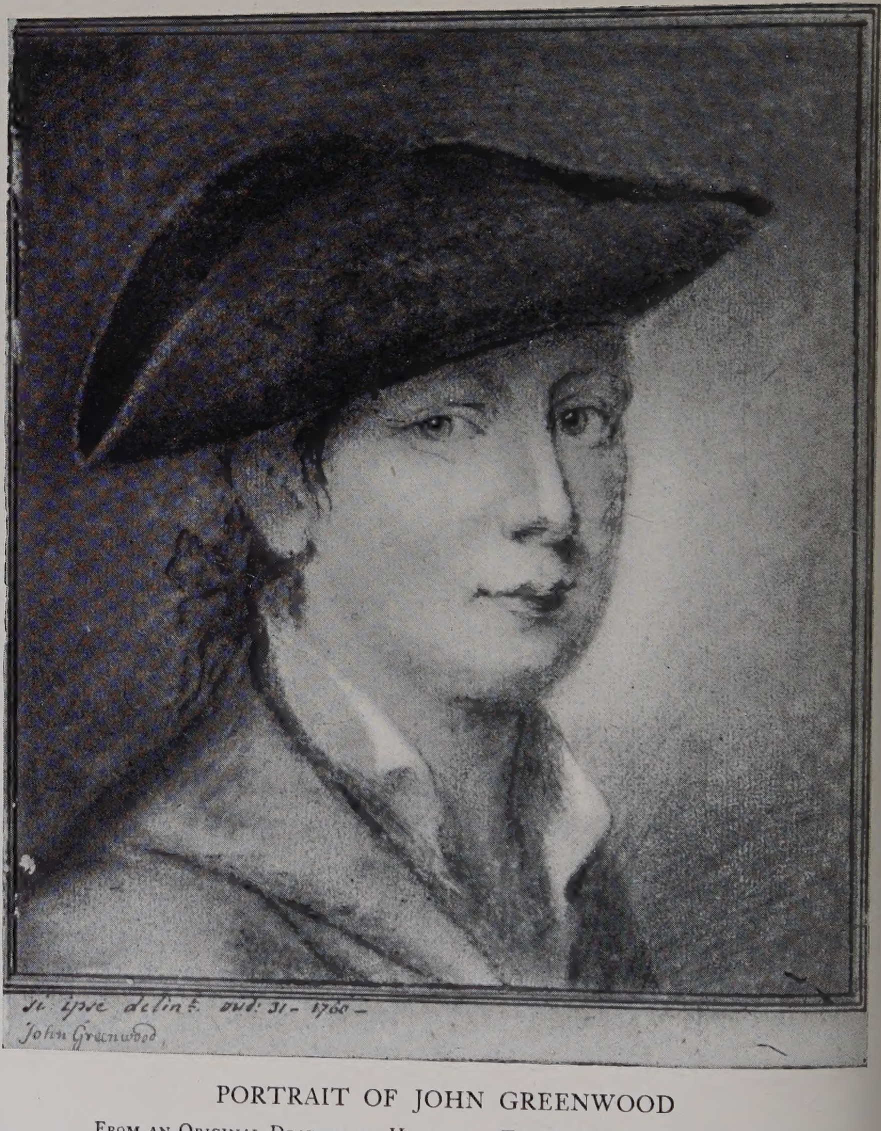

PORTRAIT OF JOHN GREENWOOD

From an Original Drawing by Himself in The New York Public Library

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E 31 August, 1927 Number 8

JOHN GREENWOOD

AMERICAN-BORN ARTIST IN EIGHTEENTH CENTURY EUROPE WITH A LIST OF HIS ETCHINGS AND MEZZOTINTS

THE MAN AND HIS WORK

N GREENWOOD, American, went abroad at an early age, and prac- d his art in foreign lands. There is no record of any engraving done in the land of his birth. Yet the very fact of his American origin gives “Americana” interest to the collection of his etchings and mezzotints as come to the Print Room of The New York Public Library. The on was presented by the children of the late Isaac John Greenwood, York, in his memory. It represents one of those happy results of a specializing spirit in collecting. It is the sort of thing that means patient hunting, a persistent energy usually beyond the power of any itution. When an institution, and the public it serves, are benefited ely by such a discriminating and tireless zeal, the original collector has morial to himself which is most enduring and satisfactory.

Greenwood, born in Boston, Mass., Dec. 7, 1727, died in Margate, d, Sept. 15, 1792, was the son of Samuel and Mary Charnock Green- f Boston, and a nephew of Prof. Isaac Greenwood, of Harvard Col- 1752 he went to Surinam, “apparently in a clerical capacity,” says , in his “American Engravers.” There, according to Wurzbach, he 3 portraits and drew animals and plants of the country.” From there 1758” is the date given by Wurzbach) he went to Amsterdam, where he became the pupil of M. Elgersma, the engraver. (Wurzbach's statement that he was also a pupil of Th. Johnston in Boston has not been verified in any other authority.) In Amsterdam he "painted and drew portraits; also historical pictures and landscapes" (so Stauffer). Wurzbach further adds that "in 1761 in Alkmaar he painted 33 persons with wife and children," whatever that may mean. What we do know from his prints is that he executed, while in Holland, a number of etchings (with a leaning toward Rembrandt) and mezzotints, and some plates combining both processes. And it seems clear also that he worked, in that country, quite in the Dutch spirit, in his original prints as well as in his reproductions of the works of others. In 1763, after a visit to Paris in the same year, he went — in September, if we again follow Wurzbach — to London, where he established himself as a portrait painter and mezzotint engraver. Here he apparently worked under the influence of the British portrait painters of the day, and it is interesting to note this change in his point-of-view and style. In London he remained thereafter, except for a visit to Holland and France, recorded by Wurzbach.

At the exhibitions of the Society of Artists he was represented (1764–1776) by a view of Boston, a figure painting, a picture of a subject in Thompson's "Seasons," a drawing of shipping, a mezzotint ("Mieris and His Wife"), and other works. That shows that he exhibited at least after 1773, the year in which Stauffer says he abandoned art for auctioneering. Wurzbach, once more in a tone of finality, fixes 1776 as the year after which he was exclusively an art dealer.

As an auctioneer he was in business at Haymarket and in Leicester Square. The New York Public Library has copies of the catalogues of the sales of the Joseph Gulston collection of prints, held by Greenwood, "at his rooms in Leicester Square," January to March, 1786. Prices and buyers at this sale are noted in ink on sheets inserted in the catalogues. Wurzbach reports that the Victoria and Albert Museum, London, has one of his marines in water colors, and the British Museum "a number of portrait drawings in ink, wash, etc., representing visitors to Greenwood's auctions."

To all this, Chaloner Smith — who states that he derived his dates, etc., from Mr. Isaac Greenwood of New York — adds ("British mezzotinto portraits" II: 599) that "Greenwood's grandson was late Sergeant-at-arms to the House of Wellington, New Zealand."

Of the dictionaries of artists cited at the head of the Check-list of mezzotints and etchings by Greenwood, LeBlanc and Thieme-Becker—especially the latter — give bibliographies.

record of Greenwood's activity as a print-maker is scattered through ictionaries, not completely given in any one. The forming of the pres-ection, and its housing in an accessible place, constitutes, in a measure, struction, a rehabilitation, one might say, of this eighteenth-century an artist.

F. W.

SCELLANEOUS PRINTS IN THE GREENWOOD COLLECTION OF THE NEW YORK PUBLIC LIBRARY

PORTRAITS OF GREENWOOD, PRINTS AFTER GREENWOOD'S PAINTINGS, ETC.

trait of John Greenwood as a young man. Bust, with hat, directed ight, looking front. Tinted drawing by himself. Written in lower nargin: "se ipse delin. oud 31, 1760. / J. Greenwood." 7½ × 6⅞.

Noted in Thieme-Becker.

Stauffer says "in 1760 he engraved in mezzotint a beautiful portrait of himself." ossibly he confused the present drawing with a supposititious mezzotint. No confir- ation of this statement has been found.

If "oud 31" is correct, the date of birth, 1727, is wrong, and LeBlanc's date, 1729, correct.

trait of John Greenwood. Bust, as an older man; directed left, look- ig front. Mezzotint. Inscription, on palette below: *The Friendly Ir. Ino Greenwood died 1792 W. Pether fecit.* J. C. Smith (Pether) 0. 6⅝ × 4⅞.

rine, with two men hanging from gallows. In the Dutch manner. Vash drawing by John Greenwood. [1760.] 10 × 13.

With cutting from sale catalogue attached: "De Volewijk . . . Voorts het Y met enige Schepen."

omas Prince. Mezzotint by Peter Pelham after Greenwood. Boston, 750. J. C. Smith (Pelham) 32; Stauffer (Pelham) 2472.

trait of Thomas Hellinx. By B. van Bakker after John Greenwood. 761. Listed by Thieme-Becker. * Not in N. Y. P. L.

rait of Jan Punt, seated at table, on which are engraving tools; to the ght, picture on easel, with palette, etc. Inscription, centre: *J. Punt ientre* [sic!] *et Graveur;* left: *G. V. d. Mijn pinxt.;* right: *Js. McAr- ell fecit.* $14\,^{9}/_{16}$ × 12⅛. Goodwin (McArdell) 186.

Second state, with inscription.

G. Portrait of Charles Greenwood. Mezzotint by Charles Turner, after Thomas Lawrence. 1828. Whitman (Turner) 233.

First state, before title.

With the biographical and other material which came to the Library wi the Isaac John Greenwood Collection, there was a photomechani reproduction of "Scene in a public house in Surinam. / From the orig nal painting by Greenwood, in the possession of Edward J. Cushin Esq., North Providence." On the back is written, in pencil: "Present by Mr. Edward Field Clerk of the Municipal Court, Providence, R. May 16, 1899. Author of Life of 'Esek Hopkins.' Capt. Esek Ho kins sits at table, middle centre, talking to Capt. Nich. Cook (aft Govr.) the Artist in doorway. Painted 1752–58, but damaged sin that date."

CHECK-LIST OF MEZZOTINTS AND ETCHINGS BY JOHN GREENWOOD

This list, arranged in approximately chronological order, has been con piled from prints in the Library's collection, and from lists in various dictio aries of artists. The latter are indicated by initial letters in parentheses, thu

L. — LeBlanc, Charles. Manuel de l'amateur d'estampes. Paris, 1854–88, vol. 2.

N. — Nagler, G. K. Neues allgemeines Künstler-Lexicon. München, 1837, vol. 5.

R. — Russell, Charles E. English mezzotint portraits and their states. Catalogue of corrections of and of additions to Chaloner Smith's "British mezzotinto portraits." London, 1926.

S. — Smith, John Chaloner. British mezzotinto portraits . . . London, 1883, vol. 2.

T-B. — Allgemeines Lexikon der bildenden Künstler, begründet von Ulrich Thieme und Felix Becker. Leipzig, 1921, vol. 14.

W.— Niederländisches Künstler-Lexikon . . . bearbeitet von Alfred von Wurzbach. Wien und Leipzig, 1906, vol. 2.

The class-mark of the Greenwood prints in the Library's Print Room is EVG. A dagger (†) before the number of an item indicates that the print ver size.

Whenever a given item is not represented in the Library's collection, the is noted: *Not in N. Y. P. L.

* * * * * * *

(S. [1bis]; R. a1; LeB. 6; W. 2; T-B.; N.)
Simon Fokke. Portrait of this engraver, holding a print. After J. Buys. Mezzotint.
Inscription, left: *J. Buys pinxit.;* right: *J. Greenwood fecit.* 13¼ × 11$^{3}/_{16}$.

Four impressions, slightly different in printing and cleanness of lower margin. On back of one, in pencil: "Presented by / J. Chlr Smith / Author of British Mezzotintos / Simon Fokke of Amsterdam / Engraver 1744." On another: "All dealers strike this / portrait / the first thing" and "Simon Fokke, Amsterdam / Engraver 1744 / bot Jan. 1905 . . . £5.5.0."

(W. 5.)
Portrait of Muilman. Half-length, preaching. Between 1759 and 1763. Mezzotint.
Inscription, centre: *WIGBOLD MUILMAN WILLEMSZ. / Geboren te Voorschoten den 11 November 1728. / Predikant te Hippolytushoef en Westerland op Wieringen / den 15 Augustus 1756 / te Edam den 13 November 1757, in 's Gravenhage den 3 Junij 1759.;* left: *L'Croix pinxit;* right: *Greenwood fecit.* 9¾ × 12⅜.

Two impressions, one with lower margin more cleaned at right.

. (S. 1; R. 1; W. 3.)
Mozé Henriques. Portrait, half-length, seated, facing and looking front. Etching and mezzotint.
Inscription, centre: *MOZÉ HENRIQUES / Portugueesche Jood. Gebooren in Rotterdam de 9^{e} van Sprokkel-maand 1685. / Haanschouwer, gij ebt mis; et is Ha Haron niet, / Die gij, (dank Greenwood's konst,) na't leeven voor u ziet = / Noch et is Habram, schoon em Saartje eer moest eeten; / Maar, et is MOSÉ, de eer der Loterij Profeeten. 17$\frac{2}{20}$61.;* left: *J. Greenwood, ad vivum del et fecit.* 9¼ × 8$^{1}/_{16}$.

Pencil note on folder which came with the Greenwood Collection: "fecit Feb. 20, 1761."

Three impressions. On back of one, cutting from a sale catalogue: " . . . Handelaar in loteri briefjes."

. (R. 3a.)
Jan Punt. Portrait. Bust, facing and looking left. Mezzotint. 6⅞ × 4⅞.

Attached, a cutting from a sale catalogue: "J. Punt, avec dedicace 'aan mijn waarden vriendt Sweerts.' " This is evidently the lettering described by Russell as "indistinct," and which, excepting the last word, is indistinct in the present impression.

5. Self-portrait. Etching. Listed in Thieme-Becker. *Not in N. Y. P.

6. (L. 1; W. 14; T-B.; N.)
Tobias regaining his sight. Etching and mezzotint. Inscription, centr
Tobias; left: *Remb. del.;* right: *JG fec.* 4 × 5¼.

Two impressions. One a little less cleaned in the lower margin. The other has
tached on mount a cutting from a sale catalogue: "Tobie subit l'operation à l'oeil, as
devant la fenêtre. Pièce très rare."

Bartsch (Gersaint) "Catalogue de . . . Rembrandt," 1797, part 1, appendix, p. 16
lists an etching of the same subject by A. de Marcenay de Ghuy.

7. (L. 2; W. 10; N.)
Jesus Christ, the boy, among the doctors. After Rembrandt. Etching.
*Not in N. Y. P.

8. (T-B.)
Head of Christ. Etching. *Not in N. Y. P.

9. (L. 3; W. 11; T-B.; N.)
Jesus Christ and Nicodemus. After Rembrandt. Etching.
*Not in N. Y. P.

10. (L. 4; W. 13; N.)
Venus and Cupid. Etching. Nagler says: *Parker exc.*
*Not in N. Y. P.

11. (L. 5; W. 1; N.)
Portrait of Caspar Crayer. Etching. *Not in N. Y. P.

12. (T.-B.)
Jurr Buttner. *Not in N. Y. P.

13. Head of a child, with cap, directed and looking front. Etching, aft
Rembrandt.
Inscription, in lower left corner: *Rembrandt pinixit.;* in lower rig
corner; *J. G. fec.* $7^3/_{16}$ × 6¼.

Probably identical with *Burwood Kintje,* listed in Nagler and in LeBlanc (no. 8
On back, cutting from a sale catalogue: "Portrait d'enfant . . . Pièce très rare
intéressante."

14. (T-B.)
Michiel Elgersma. Portrait, half-length, with three-cornered hat, seat
at table, pen in hand. Mezzotint. 5½ × 5.

Greenwood studied under Elgersma.
See notes to next item.

15. (W. 14; T-B.)
Michiel Elgersma. [Taco Hajo Telgersma?] Portrait, half-lengt
with three-cornered hat, seated at table by window, profile to le
drawing with crayon in holder. Etching.
Inscription, centre: *De Schoone Tekenkunst kan niet alleen bekooren
Aan de Eedle Jeugd; maar Zy, die Steets haar Meester kroo
/ Weet zelf den Ouderdom tot Oefning aan te spooren; / Gelyk*

Afbeelding in dees Konstprint klaar vertoond. / H. v. E.; left: *J. Greenwood del. et fecit.* 6⅞ × $6^1/_{16}$.

In margin, in pencil: "Jelgersma, Schilder van Groningen."

Thieme-Becker lists only a portrait of Jelgersma, without description, and none of Elgersma.

Wurzbach, under Greenwood, lists only a portrait of Jelgersma — evidently the present etching; under Jelgersma, no portrait is mentioned; under Elgersma, both these portraits — nos. 14 and 15 in the present list — are mentioned. In J. F. van Someren's "Beschrijvende Catalogus van gegraveerde portretten van Nederlanders," 2. deel, Amsterdam, 1890, p. 293, no. 2103, the present portrait is set down as one of Jelgersma.

C. Kramm — "Levens en werken der . . . hollandsche . . . Kunstschilders . . . ," vol. 2, Amsterdam, 1858, lists a portrait of Elgersma, with verses — the present etching — under Greenwood; under Elgersma the same portrait is mentioned, as well as the other one by Greenwood — no. 14 in the present list.

It is quite possible, therefore, that the use of the name of Taco (or Tako) Hajo Jelgersma is erroneous.

(W. 21; T-B.)

Girl with candle. After Verkolje. Mezzotint. 12⅞ × 9⅝.

a. Before all letters. Trimmed close to plate-mark.

b. With inscription, centre: *te Amsterdam by P. Fouquet Junior.*; left: *N. Verkolje pinxt.*; right: *Greenwood fec.*

Mother suckling child. Mezzotint.

Inscription, left: *C. Troost del.*; right: *Greenwood fec.* 11¼ × 9.

Two impressions, one slightly darker than the other. On back of one, cutting from a sale catalogue: "Soins maternels. Effet de chandelle . . ."

Three-quarter length of a man wearing hat, holding pipe in right hand and a small bottle in the left, sitting beside a barrel, on head of which lie a loaf of bread, a fish, etc. Mezzotint. 10¼ × 8¼.

On margin, in ink: "Zittende Boertje met zijn pijp."

Klaas Verlaan. Mezzotint.

Three-quarter length, seated, facing and looking front, right hand holding long clay pipe ("churchwarden"), left hand resting on leg; sailboat beyond.

Inscription, centre: *Men leest de deftigheid in 't Mannelyk gezicht / Van de eer der Amstelhaven knechten, / Die vyf en twintig jaar betoonde zyne plicht / Op Schuit en Boeyer paste, en waakte voor hunn' rechten. / Zeilminnars ! heeft zyn aart, of Trouw u oit roldaan, / Bedankt des Konstnaars hand voor't beeld van Klaas Verlaan.* left: *J. Greenwood del. et fecit.* 10¾ × 10⅛.

On margin, in pencil: "Man-servant of the Amsterdam Yacht Club."

20. (L. 14; W. 18; T-B.; N.)
Lady with parrot. After Metzu. Mezzotint. 13¼ × 10⅜.
a. Before all letters.
On back, in pencil: "La dentellière."
b. With inscription, centre: *t'Amsterdam by P. Fouquet Junior.;* left: *G. Metsu P.;* right: *Greenwood F.* Trimmed close at top and sides.

21. (W. 22; T-B.)
Marine. After W. van de Velde.
C. Kramm ("Levens en werken der hollandsche . . . Kunstschilders," 2. deel, Amsterdam, 1858, p. 602) describes this as "een woelend zeetje met scheepjes," and lists four states.

*Not in N. Y. P. L.

†22. (L. 1; W. 20; N.)
Dutch interior, with a pair of lovers at the left. Mezzotint.
Inscription, faintly scratched, left: *R. Brackenberg.* 19⅞ × 13⅝.
Lower margin not cleaned.

23.
Half-length of man, wearing cap, seated, right hand holding wine glass, left resting on table and holding short clay pipe. Mezzotint.
Inscription, scratched, left: *A. v. Ostade p.;* right: *Greenwood f.* $5\frac{1}{8} \times 4\,^{7}/_{16}$.

24. (T-B.)
"Mieris and Wife." Mezzotint.
Woman seated, holding small dog, which man, standing, is teasing; a larger dog at the woman's knees, near a table. After Mieris.
a. With frame in three tones. $12\frac{1}{2} \times 9\,^{13}/_{16}$.
Inscription, in scratched letters, left: *F. v. Mieris pinxt.;* right: *J. Greenwood fect.*
On back, in pencil: "Engraver's proof."
Lower margin not cleaned.
b. Inscription, centre: *Done after a picture of F. v. Mieris / in the Cabinet of HIS SERENE HIGHNESS the Prince of Orange.;* left: *L. Schouman delt.;* right: *Greenwood fe.*
Trimmed into engraved field and into lettering.
c. Frame removed. Print now measures 9¾ × 7⅜; plate $11 \times 7\,^{7}/_{16}$.
Inscription, in scratched letters, left: *Mieris p.;* right: *Greenwood.*

PORTRAIT OF JOHN GREENWOOD

From a Mezzotint by W. Pether in The New York Public Library

(L. 15; W. 15; T-B.; N.)

Card players. After Ostade. [After Teniers, says Nagler.] Mezzotint.
nscription, in scratched letters, left: *A. v. Ostade pinx.;* right: *Greenwood f.* 13⅝×11⅞.

Lower margin not cleaned.
On back, duplicate stamp of the Amsterdam Print Room.

(L. 16; W. 12; N.)

The social friends. After Teniers. Mezzotint.
nscription, centre: *Published & Sold by Edwd. Orme, Bond St., corner of Brook St., 1814. / THE SOCIAL FRIENDS. / After a picture of the same size, painted by David Teniers.;* left: *J. Greenwood fecit.* 13¾×11.

Probably a later state, with publication line added, after Greenwood's death.

(S. 8; R. 8; L. 12; W. 16; T-B.; N.)

Old age. After Eckhout. Mezzotint.
Old man, bearded, with cap, seated before hearth.
Inscription, centre: *Behold, fond Man! / See here thy pictured life; pass some few years, / Thy flowering Spring, thy Summer's ardent strength, / Thy sober Autumn fading into age, / and pale concluding Winter comes at last, / And shuts the scene. Thompson's Seasons.;* left: *G. v. Eckhout pinxt.;* right: *J. Greenwood fecit.* 17⅞×13⅞.

Done for Boydell, says Nagler. "Engraved for the Boydell Collection of 1770." — Pencil note on folder.

a. Before letters. Smith 8, 1st state.
b. With inscription. Smith 8, 2d state.

(L. 13; W. 17; T-B.; N.)

The Happy Family, or Grace before Meal. After van Herp. Mezzotint. 18½×14⅛.

"Engraved for the Boydell Collection of 1770."— Pencil note on folder.

a. In scratched letters, left: *Van Herp pinxt.;* right: *Greenwood fect.* "J. Boydell ex. 1768" written in ink in centre. Pencil note on back: "Het Gebed, naar van der Herp.— Proefdruk."

Lower margins not cleaned.

b. With *J. Boydell excudit* added in scratched letters in centre. Lower margin still not cleaned, but weak impression, apparently from worn plate.

(S. 4; R. 4.)

Philip Sherard and William Tiffin. After N. Hone. Mezzotint.
Full-lengths, in uniform. Battle in background.
nscription, centre: *The Honble Lieut. General Sherard, Coll. of His*

Majesty's 69th Regt. or South Lincoln Volunteers. / When Col
Commandant of the 2d Battn. of the 1st Regt. of Foot Guards, accom
panied by Capt. Tiffin of the Royal Artillery, relieving with his Bat
tallion a Piquet of / Hanoverians, who were posted in a redoubt t
defend the passage of the Brugher Mühl, near Amœneburgh in Hess
on the 21st. of Septr. 1762.; left: *N. Hone pinxt.;* right: *J. Green*
wood sculpt. 19⅞ × 16.

a. Before letters. Not finished. *Not in N. Y. P. L

b. With inscription. Russell 4, 2d state.

30. (S. 9; R. 9; L. 7; W. 6; N.)
Rembrandt's Father. After Rembrandt. 1764. Mezzotint. 12⅛
13¾.

"From the original painting belonging to W. Baillie," says Nagler.
Two impressions, both before all letters, both with lower margin not cleaned. One
a bit richer than the other. The latter, which has lower plate-mark (lacking in th
other), has note penciled on back: "Rembrandt's father J. Greenwood fecit 1764, fro
original in possession of W. Baillie."

31. (S. 3; W. 9; T-B.)
William V, Prince of Orange. Mezzotint.
Half-length, facing and looking right.
Inscription, centre: *Willem de Vyfde / Prins van Oranje en Nassau &*
&c &c.; left: *T. P. C. Haag ad vivum pinxt.;* right: *J. Greenwoo*
fecit.

a. Before all letters. Smith 3, 1st state. *Not in N. Y. P. L

b. With inscription, as described. Smith 3, 2d state.
Two impressions.

32. (L. 17; W. 19; T-B.; N.)
Curious girls. After Greenwood. Mezzotint.
"Greenwood inv. fec." says Nagler. *Not in N. Y. P. L

33.

The Penitent. Mezzotint.

Woman seated in chair, leaning toward table on left. Bed at right. Cur
tained window in centre.

Inscription, centre: *The PENITENT. / Published as the Act direct*
Feby 1, 1768. Printed for Robt. Sayer at No. 53 in Fleet Street.
right: *J. Greenwood fecit.* 6⅛ × $4^{9}/_{16}$.

. (S. 6; R. 6; L. 10; W. 8; T-B.; N.)

George Whitefield. After N. Hone. Mezzotint.

Half-length, preaching, facing slightly to the right, looking slightly to the left. Church window at right.

Inscription, centre: *The Reverend Mr. George Whitefield, A.M. / Chaplain to the Countess of Huntingdon.*; left: *Hone pinxt.*; right: *Greenwood feci.* 14⅞×10⅞.

a. Before all letters. Smith 1st state. *Not in N. Y. P. L.

b. As described. Smith 2d state. *Not in N. Y. P. L.

c. Plate retouched, and cut to 13⅞×10. Added to inscription, centre: *London, Printed for Robt. Sayer. No. 53 Fleet Street.* Like Smith 3d state, but without *53* after *Fleet Street.* Russell 3d state. *Not in N. Y. P. L.

d. With *53* added at right, in lower right corner of plate. Smith 3d state.

. (S. 7; R. 7.)

George Whitefield. After N. Hone. Mezzotint.

Similar to the preceding (no. 34).

Inscription, centre: *The Reverend Mr. George Whitefield, A.M. Chaplain to the Countess of Huntingdon.*; left: *N. Hone pinxt.*; right: *J. Greenwood fecit.* 14×9¾, acc. to Smith; 15×10⅞, acc. to Russell.

a. As described. Russell 1st state. *Not in N. Y. P. L.

b. With inscription added in centre, above title: *Carington Bowles excudit*; below title: *Published as the Act directs, July 1st. 1769. Printed for Carington Bowles, No. 69 St. Pauls Ch. Yard, London.* *Not in N. Y. P. L.

. (S. 5; R. 5; L. 9; W. 7; T-B.; N.)

John Wesley. After N. Hone. Mezzotint.

Three-quarter length, standing, directed, facing and looking right, left hand raised, right hand holding book. Landscape beyond at right.

Inscription, centre: *John Wesley, M. A. Fellow of Lincoln College Oxford. Chaplain to the Right Honble the Countess Dowager of Buchan. Done from an Original Picture in the Possession of Thos Woolridge Esqr of East Florida. London, Printed for Robt Sayer, Map and Printseller. No 53 in Fleet Street. Publish'd as the Act directs, 20th*

Decr 1770. Price 5s.; left: *Nathaniel Hone Pinxt.;* right: *John Greenwood fecit.* 13⅜ (plate 15) ×11.

a. Before letters. Inscription, scratched, centre: *Publish'd as ye Act Directs Dec 20 1770.;* left: *Hone pinxit;* right: *Greenwood fecit.* Smith 1st state.

Two impressions, one with the lower margin not cleaned, the other cleaned.

b. As described. Smith 2d state. *Not in N. Y. P. L.

c. "Plate," says Smith, "cut 1⅛ at top, ⅝ on left, ½ on right side; retouched; artists' names erased, instead *N. Hone pinx.* [*pinxi* says Russell.] *Jno Greenwood fecit.;* after 'Buchan' *Aged 67,* price erased, instead *78.*" *Not in N. Y. P. L.

"The B. M. impression," says Russell, "is without *78* at end of impression." He also states that *Woolridge* has now become *Wooldridge.*

37. (T-B.)

Portrait of Nathaniel Hone. After Hone. Mezzotint.

*Not in N. Y. P. L.

38. (S. 2; R. 2; T-B.)

Amelia Hone. After N. Hone. Mezzotint.

Half-length, seated, behind small table, stirring contents of cup, cap tied under chin.

Inscription, centre: *R. Sayer Excudit / London, Printed for Robt Sayer No. 53 in Fleet Street, Published as the Act directs 1 May 1771.;* left: *N. Hone pinxt.;* right: *Jno Greenwood fecit.* 12½×9⅞.

a. Before all letters. Written in ink, left: "Hone pinxt."; right: "Greenwood fec."; centre, below plate-mark: "unfinished proof. —ye portrait of Mrs. Bigg, dautr. of Mr. Hone painter."

b. In scratched letters, centre: *R. Sayer Excudit. / Published as the Act directs 1st Jany 1771.;* left: *Hone p.;* right: *Greenwood f.* Russell 1st state.

c. As described. Russell 2d state.

— Another impression; publication line trimmed off. Differences in printing, *e. g.*, light parts of chair lighter, practically no reflection in table top.

NEWS OF THE MONTH

GIFTS

DURING the month of July, 1927, there were received as gifts 4,741 volumes, 10,896 pamphlets, 6 maps, and 41 prints. Some interesting ms were the following:

From the Arden Studios, Inc., came the five volumes of "Masterpieces Chinese National Art, the collection of Mr. Seaouk'e Yue," Shanghai, 16, and the seven volumes of "Antique Famous Chinese Paintings col- ted by P'Ang Lai Ch'en," Shanghai, 1916. The Hokuseido Press, Tokyo, pan, gave a copy of volume one of "A History of English Literature in a ies of Lectures by Lafcadio Hearn," Tokyo, 1927 (received through Japan nsulate General's Office, New York City).

From Mr. William Gwinn Mather, Cleveland, Ohio, came a copy (no. 8 of 250 printed) of "The Mather Literature," by Thomas J. Holmes, brarian of the William Gwinn Mather Library, privately printed, Cleve- d, 1927. The Plandome Press, Inc., gave copies of the following publi- ions: "The Fichet Letter . . ." by Douglas C. McMurtrie, New York, 27 (no. 28 of 200 printed); "Fifteenth Century Papermaking," by Dard unter, New York, 1927; "Printers' Devices in Dutch Incunabula," by J. Schretlen, New York, 1927; "A Dutch Typefounder on The Invention Printing," "Fraktur Type Design," "The Type Punches cut by Garamond d LeBé," "Biographical Notes on J. F. Unger, German Typefounder"— by Douglas C. McMurtrie, New York, 1926. From Mr. Henry Meade and, San José, California, came a copy of the privately printed work, Day in the Hills, a Poetical Competition of the Edwin Markham Chapter the English Poetry Society, held at Villa Montalvo, Saratoga, California, pt. 18, 1926, Edited by Henry Meade Bland," 1926 (one of the "Fifty oks of the Year").

From L'Archiviste, Province of Quebec, Quebec, Canada, came two copies ne of the English edition and one of the French) of "Old Manors Old ouses published by the Historic Monuments Commission of the Province Quebec," First Series, Quebec, 1927. Lieut. A. D. R. Sullivant gave a py of "Icones Muscorum or Figures and Descriptions of most of those osses Peculiar to North America which have not yet been figured, by the e William S. Sullivant," Cambridge, Massachusetts, 1874; "Musci and paticae of the U. S. . . . ," by William S. Sullivant (the personal, annotated py of the author, grandfather of the donor); and miscellaneous papers. the bequest of Miss M. G. Whitlock, came a collection of 349 volumes and amphlets, containing fiction, history, poetry, and other material.

Dr. H. M. Dodge, Morristown, gave the Library 39 engravings by M. I Danforth. From the Society of Iconophiles came a "View of the opening of our Batterys at Hell Gate upon the Rebel Works at Walton's house on the island of N. York 8 Sept^r. 1776" engraved in line on copper by Walter M. Aikman for the Society of Iconophiles (Series XV, no. 8) from a wash drawing by Robertson.

The following works were received as gifts from the authors: From Mr. W. J. Arkell, Los Angeles, California, an autographed copy of his work, "Old Friends and Some Acquaintances"; from Mr. Henry H. Bemrose, Derby, England, "The House of Bemrose 1826–1926," Derby, 1926; from Mr. Rudolf A. Clemen, Chicago, "Cattle trails as a factor in the development of Livestock Marketing" [Reprint from Journal of Farm Economics, Oct. 1926]; from Mr. Thomas De Beverley, London, "The Youth of Sir Arthour, the Quest of Sangraele and other Poems," London [c. 1925]; from Mr. Ethelbert V. Grabill, Boston, "Sacco and Vanzetti in the Scales of Justice," Boston, 1927; from Mr. Charles S. Hartwell, Spring Valley, N. Y., "A School-master's Letters . . . printed for his former pupils June 1927"; from Mr. W. A. Kinney, Los Angeles, "Hawaii's Capacity for Self-Government all but Destroyed," Salt Lake City [c. 1927]; from the Rev. Preston A. Laury, Bethlehem, Pennsylvania, "The History of the Allentown Conference of the Ministerium of Pennsylvania," Kutztown, 1926; from Sig. Ugo Monneret de Villard, Milan, Italy, "Les Couvents près de Sohâg (Deyr el-Abiad et Deyr el-Ahmar); Ouvrage publié sous les Auspices du Comité de Conservation des Monuments de l'Art Arabe," volumes one and two, Milan, 1925, 1926; from Miss Lily A. Long, St. Paul, Minnesota, "Radisson the Voyageur, a verse drama in four acts," New York, 1914, "The Singing Place and other Poems," Chicago, 1922, and two volumes of poems by Arthur Upson; from Mr. Henry D. Paxson, Philadelphia, "Brief Itinerary of a trip from Philadelphia to Washington Crossing and other points of Historic Interest in Bucks County, Pennsylvania . . ." [c. 1926]; from Hon. Van A. Snider, Judge of the Probate Court, Lancaster, Ohio, an autographed copy of "Fairfield County in the World War . . ." [c. 1926].

ADDITIONS AND USE OF THE LIBRARY IN JULY, 1927

DURING the month of July, 1927, there were received at the Library 27,584 volumes and 12,382 pamphlets. (These include the additions to both Reference and Circulation Departments.) The total number of readers recorded in the Central Building was 112,172. Visitors to the building numbered about 221,800.

NEW PERIODICALS

endschule. St. Louis, Mo. Semi-monthly.

ican sugar and cotton journal. Durban, outh Africa. Monthly.

gheny Carnegie Free Library. Monthly ulletin. Pittsburgh, Pa. Monthly.

irevolutionaire staatkunde. 's Gravenage, Netherlands. Quarterly.

zona. — State Game Department. Arina wild life. Phoenix, Arizona. Monthly.

ociated Leather Goods Manufacturers. onthly bulletin. New York City. onthly.

Baluarte. México, D. F. Weekly.
ublished by the Confederación de transportes y comunicaciones.

Laboratories record. New York. onthly.
ublished by the Bell Telephone Laboratories.

-Hador. New York. Weekly.

k-craft annalist. New York. Monthly.
ublished by the Employing Bookbinders Association of New York. Open Shop Group.

ks illustrated. London. Monthly.

ba za Rossiyu. Paris. Weekly.

ish Chamber of Commerce in Belgium, c. Monthly journal. Brussels, Belum. Monthly.

ish-Israel herald. Doncaster, England. onthly.

oklyn review. Brooklyn, N. Y. Weekly.

etin of social research. Los Angeles, al. Quarterly.
ublished by the Social Research Society of Southern California.

nieks. Riga, Latvia. Monthly.

ara de comercio española de Filipinas Manila. Boletín oficial. Manila, P. I. onthly.

Verde Islands. Boletim. Praia, Cape erde Islands. Weekly.

gio mayor de Nuestra Señora del Rorio. Revista. Bogotá, Colombia. onthly.

pañía telefónica nacional de España. — epartamento de Instrucción. Curso de nferencias semanales. Madrid. onthly.

une di Bologna. Bologna, Italy. onthly.

on seed oil magazine. Atlanta, Ga. onthly.

it craft. Chicago, Ill. Monthly.
blished by the Chicago Association of Credit Men.

Cubano hebreo. Habana, Cuba. Monthly.

Czechoslovak herald. Los Angeles, Cal. Monthly.

Czecho Slovak pictorial weekly. New York. Weekly.

D. A. C. news. Detroit, Mich. Monthly.
Organ of the Detroit Athletic Club.

Deutsche Bühne. Berlin. Semi-monthly.
Organ of the Deutscher Bühnenverein.

Educational quarterly. Baroda, India. Quarterly.
Published by the Secondary Teachers' Association of Baroda.

Employers' Federation of New South Wales. Industrial bulletin. Sydney, N. S. W. Monthly.

Envelope industry. Flushing, N. Y. Monthly.

Exile. Dijon, France. Three times a year.

L'**Expansion** commerciale de la France. Paris. Monthly.
Published by "Comité national des conseillers du commerce extérieur de la France."

Federation family. New York. Monthly.
Published by the Federation for the Support of Jewish Philanthropic Societies of New York City.

Ferris bulletin. Grand Rapids, Mich. Monthly.

Film spectator. Hollywood, Cal. Semi-monthly.

Film Spiegel. Berlin. Monthly.
Beilage to *Lichtbildbühne.*

Floating university. New York. Monthly.
Published by the International University Cruise, Inc.

Gavel. Lincoln, Neb. Quarterly.
Published by Delta Sigma Rho.

General Motors world. New York. Monthly.
Published by General Motors Export.

Grand Central art notes. New York. Quarterly.
Published by the Grand Central Art Galleries.

Gregorianum. Rome, Italy. Quarterly.
Published by the Pontificia Universitas Gregoriana.

A **Gyermek.** Budapest, Hungary. Irregular.
Published by the Magyar Gyermektanulmányi es Gyakorlati Lélektani Társaság.

Hanover, Germany. — Statistisches Amt. Statistischer Vierteljahresbericht. Hanover, Germany. Quarterly.

Hazaphon. Haifa, Palestine. Weekly.

Home magazine. London. Monthly.

Huntington Chamber of Commerce, Inc. News letter. Huntington, L. I. Irregular.

Internationale syndicale chrétienne. Utrecht, Netherlands. Monthly.
Published by the Confédération internationale des syndicats chrétiens.

Iron and steel world. Pittsburgh, Pa. Monthly.

Isaac Delgado Museum of Art. Bulletin. City Park, New Orleans. Quarterly.

Ithaca Conservatory and Affiliated Schools. Service bulletin. Ithaca, N. Y. Irregular.

J. L. A. Library journal. Azabu-ku, Tokyo, Japan. Monthly.
Published by the Japanese Library Association.

Journal of adult education. London. Semi-annual.
Published by the British Institute for Adult Education.

Koloniale Rundschau. Berlin. Monthly.

Kooperativne zhyttya. Kharkiv, Ukraine. Semi-weekly.

Kostromskoye nauchnoye obshchestvo po izucheniyu mestnovo kraya. — Galichskoye otdeleniye. Trudy. Galich, S.S.S.R.

Libertà. Berlin. Monthly.

Lithuanian "Elta" agency service. London. Irregular.
Published by the Lithuanian Information Bureau.

Lookout. Denver, Colorado. Irregular.
Published by the Denver Public Library.

Lot polski. Warsaw, Poland. Monthly.
Organ of the Ligue aéronautique de Pologne.

M. H. R. A. Liverpool, England. Three times yearly.
Bulletin of the Modern Humanities Research Association.

McGraw-Hill news. New York. Monthly.
Published by the McGraw-Hill Publishing Co.

Masterkey. Los Angeles, Cal. Eight times a year.

Masterpieces. Chicago, Ill. Monthly.
Published by Lebolt & Company.

Military Order of the World War. National bulletin. New York. Monthly.

National Popular Government League. Bulletin. Washington, D. C. Irregular.

Norsk Ungdom. Oslo, Norway. Monthly.

Nova hromada. Kharkiv, Ukraine. Semi-monthly.

Nova tago. Wendsbek, Germany. Quarterly.
Published by the Bahaa Movado Hamburg, Esperanto Komitato.

Overseas official publications. London. Quarterly.
Published by the Royal Colonial Institute.

Pays Lorrain. Nancy, France. Monthly.

Pedagogicheskoye byuro. Vestnik. Pragu
Czechoslovakia. Monthly.

Pennsylvania progress. Harrisburg, P
Monthly.

People's advocate. Adelaide, S. Australi
Monthly.

Petit progrès de l'Allier. Moulins, Franc
Semi-weekly.

Phi delta delta. Menasha, Wis. Quarterly.
Organ of the Phi Delta Delta Women's Leg
Fraternity.

Die **Pressluft-Industrie.** Berlin. Bi-monthl

Printing instructor. Chicago, Ill. Fi
times a year.
Published by the United Typothetae of America.

Pyrenées littéraires. Toulouse, France. Monthly.

Red International of Labor Unions. Bulletin. Paris. Weekly.

Regional planning. New York. Irregula
Published by the Committee on Regional Plan
New York and its Environs.

Research projects of the member school
Bloomington, Ind. Semi-annual.
Published by the American Association of Colleg
ate Schools of Business.

Restorer. Independence, Mo. Monthly.

Revista de la Biblioteca nacional de Bogot
Bogotá, Colombia. Irregular.

Revista mexicana de estudios histórico
México. Bi-monthly.

Salmagundi. Hastings-on-Hudson, N. Y
Quarterly.

Shoe merchandising. Boston, Mass. Monthly.

Shoe style digest. Boston, Mass. Monthl

Sir Walter Scott quarterly. Edinburg
Scotland. Quarterly.

Société belge d'études et d'expansion. Bu
letin périodique. Liége, Belgium. B
monthly.

Transition. Paris, France. Monthly.

United States. — Department of Agricu
ture. Leaflet. Washington, D. C. Irregular.

Universitario. Paris, France. Quarterly.
Published by the Asociación intélectual america

Vie dell' impero. Rome. Monthly.

Westinghouse magazine. East Pittsburg
Pa. Monthly.
Published by the Westinghouse Electric & Ma
facturing Company.

Westralian worker. Perth, Western Au
tralia. Weekly.
Published by the West Australian Labor Party.

STARCHES

1811–1925

,IST OF REFERENCES DEALING WITH THE CHEMISTRY AND TECHNOLOGY OF STARCHES, DEXTRINS AND AMYLASES

COMPILED BY

ROBERT P. WALTON, Science and Technology Division

ORDER OF ARRANGEMENT

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Enzymic Hydrolysis
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  Iodine Methods
  Specific Gravity Methods
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Manufacture and Preparation of Dextrin
Starch Factory Waste Waters
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Determination of Activity
  Determination of Amyloclastic Activity
  Determination of Saccharogenic Activity
Mould, Fungus, Yeast and Bacterial Amylases
Sources and Occurrence
Industrial Applications

PART VII

AMYLASES

INTRODUCTION

MYLASES are enzymes which act upon starch (and the closely related
substances, glycogen and some of the dextrins) in such a way as to con-
(hydrolyze) these substances more or less completely into sugars. Mal-
(malt sugar) is the chief sugar thus formed; glucose sometimes also
ears as the result of the action of amylase upon starch; but sucrose, i. e.,
nary cane sugar is not thus formed. Some, at least, of the dextrins are
rmediate chemical steps between starch and maltose, and sometimes a
e part of the starch which has been acted upon by amylase is changed only
dextrins and not all the way to malt sugar. This is as far as the action

need go in processes in which what is desired is to "dissolve" the starch by converting it into soluble products. A commercially important example of such use of amylase is to remove the starch which has been used in "sizing" threads in the textile industries. Other economic relations and industrial uses will be more clearly apparent after a brief consideration of the place of the amylases in nature.

The function of starch in nature is to serve the plant which forms it, or the one of the next generation, as a reserve fuel-food. This material stored in the seed, root, tuber, or other organ of the plant as starch can only be brought into the circulation and service of the plant by being changed into a more soluble substance and in nature this change is brought about by the action of some starch-digesting enzyme — some amylase. Now many animals, including the human, have also come to make large use of starch as fuel-food. Most people take more of their food-fuel in the form of starch than of any other substance, the starchy seeds of grains and the starchy tubers of potatoes being very prominent in most food supplies. Moreover, man feeds not only himself and his family but his farm animals also very largely upon starchy food, and in all cases the bringing of this starch into the service of the human or other animal body is a function of its starch-digesting enzymes — the amylases of the digestive juices. Of these digestive ferments concerned with the utilization of the starch of the food, two are prominent, the salivary and pancreatic amylases occurring respectively in the saliva and in the pancreatic juice, and still largely known by their older names of ptyalin and amylopsin.

Thus the activities of the amylases are of fundamental importance to the processes of plant and animal life and to the chemical understanding of these life processes.

Important as are the amylases to man in his own nutrition and in his agricultural and other plant and animal industries, further industrial uses for these starch-digesting enzymes have been developed in many directions — conspicuously in the malting and brewing industries in which the amylase developed by the sprouting seed (e. g., malted barley — malt amylase) or a growing fungus, such as that of the mold *Aspergillus oryzae*, is made the means of converting into soluble substances large amounts of starch from other sources. Here the amylase, developed in nature as a reagent for use in life processes, is utilized by man as an industrial reagent also.

Of such an important reagent or group of reagents we naturally wish to know the chemical nature; but the investigation of this has presented very eat difficulties and complications, partly because of the sensitiveness and stable nature of the amylases, especially when purified, and partly because e amylases have been found only as colloidal substances whose properties not lend themselves to the ordinary chemical and physical criteria for ciding when one has actually succeeded in isolating a substance as a chemical lividual. It has, therefore, been necessary to develop new research methods d criteria for investigation in this field, and these are of so intricate and hnical a nature that it is not feasible to explain them here, and it therefore comes necessary to indicate the results of research upon the chemical nature these enzymes in what may seem a somewhat dogmatic way to those ustomed to the time-old text-book statement that the chemical nature of zymes is unknown. This prevailing attitude of unquestioning acceptance ignorance in a field so important, and in which so much research work has en done, will, we believe, be much modified by study of the original litera- e to which this bibliography will serve as a guide. The student of this erature will find that there is evidence, largely indirect but none the less nvincing when thoroughly understood, that the typical and best-studied ylases, so far as concerns their material nature, either are proteins or con- n proteins as essential constituents. The fact that some enzymically active eparations have failed to show protein reactions does not, as many writers ve supposed (and as many current scientific books still state or imply) prove the protein nature of the enzyme; because it has now been shown t the enzymic activity of the amylase may be a test no less than one thou- d times more delicate than are the best of the ordinary direct tests for the sence of protein matter. For example, pancreatic amylase has been con- trated to such a degree of purity as to show essentially uniform properties successive preparations and in this case its characteristic enzyme action is l actively manifested at a dilution of one part of the substance in one ndred million parts of water, so much so, in fact, that it converted four lion times its weight of starch before it (the enzyme) had lost its activity ough its own great sensitiveness and instability. Were the enzyme more ble in its own chemical nature, one could set no limit to the amount of rch which a given small amount of amylase might convert into sugar.

Thus the enzymes are seen to be exceedingly effective catalytic agents, the dy of which offers great possibilities, both as to economic application and o the fuller chemical understanding of the processes of nature and of life.

Henry C. Sherman

PURIFICATION

2592. **Mialhe.** Note sur le mode d'action qu'exerce la diastase animale sur l'amidon. (Académie des sciences, Comptes rendus, Paris, 1845, tome 20, p. 1485–1488.) ***EO**

Finds that the methods of Payen and Persoz for obtaining diastase are applicable also to saliva.

2593. **Dubrunfaut,** Augustin P. Mémoire sur une matière azotée du malt, plus active que la diastase, et sur sa préparation économique applicable à l'industrie. (Extrait.) (Académie des sciences, Comptes rendus, Paris, 1868, tome 66, p. 274–275.) ***EO**

The product "maltine" is much more active than the diastase prepared by the alcohol precipitation method of Payen and Persoz. Maltine is best prepared by repeatedly extracting malt at 30° with 4 or 5 parts water, precipitating with sumach or tanning liquid and pressing the precipitate in linen bags.

Also condensed in *Chem. Centr.*, 1868, p. 1025–1028; *Bull. soc. chim. Paris*, 1868, nouv. série, tome 10, semestre 2, p. 54; *Wag. Jahr.*, 1868, Jahrg. 14, p. 550–559.

2594. **Payen,** A. Extraction et propriétés de la diastase. (Académie des sciences, Comptes rendus, Paris, 1868, tome 66, p. 460–462.) ***EO**

Author agrees with Dubrunfaut that alcohol precipitation affects the constitution of the diastase. Repeats some details of an earlier described method for the preparation of diastase.

Abstract in *Chem. Centr.*, 1868, p. 1028.

2595. **Gorup-Besanez,** von. Ueber das Vorkommen eines diastatischen und peptonbildenden Ferments in den Wickensamen. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1874, Jahrg. 7, p. 1478–1480.) **PKA**

The amylase was obtained by extraction with glycerin and precipitation with alcohol and ether. The dried material contained nitrogen and sulphur and left a considerable amount of ash upon incineration.

Abstract in *Chem. Centr.*, 1875, p. 5.

2596. **Perret,** E. Préparation de la diastase. (Journal de chimie médicale, Paris, 1874, tome 48, p. 109–110.) **WTA**

Reprinted in *Journal de pharmacie et de chimie*, 1874, tome 20, p. 43–44, *WTA*.

Abstract in *Chem. Centr.*, 1874, p. 569.

2597. **Zulkowski,** Karl. Über die chemische Zusammensetzung der Diastase und der Rübengallerte. (Akademie der Wissenschaften zu Wien, Sitzungsberichte, Mathematisch-naturwissenschaftliche Classe, 1878, Bd. 77, Abt. 2, p. 647–654.) ***EF**

Malt is extracted with glycerol and the amylase purified by successive precipitations with alcohol. Gives elementary analysis.

Condensed in *Wag. Jahr.*, 1878, Jahrg. 24, p. 960–962.

Abstract in *Chem. Centr.*, 1879, p. 162–164.

2598. **Dubrunfaut,** Augustin P. La matière active du malt ou maltine et diastase. (Moniteur scientifique du docteur Quesneville Paris, 1879, série 3, tome 9, p. 1194–1200.)

Available in Library of Columbia University.

2599. **Zulkowski,** Karl. Diastase und Invertin. (Auszuge.) (Jahres-Bericht der chemischen Technologie, Wagner's, Leipzig, 1884, Jahrg. 30, p. 439–440.) **VOA**

The enzymes are purified by treating the extract with ether.

2600. **Hirschfeld,** Eugen. Über die chemische Natur der vegetabilischen Diastase. (Archiv für die gesammte Physiologie, Pflüger's, Bonn, 1886, Bd. 39, p. 499–514.) **QCA**

Diastase was precipitated from malt extract by lead acetate and purified by precipitations with alcohol. Concentrated NaCl solution serves as an effective preserving medium. The purified diastase fails to give typical protein reactions and appears t have the character of a gum. It is resistant to the action of gastric juice, pancreatic ferment and papain.

Abstract in *Wag. Jahr.*, 1887, Jahrg. 33, p. 1014–1016; *Chem. Centr.*, 1887, p. 337.

2601. **Loew,** O. Berichtigung über Reindarstellung der Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1887 Jahrg. 20, p. 58. **PK**

A reply to recent criticism of Lintner Maintains that diastase may be satisfactorily purified by precipitation with lead acetate. Lintner's results are attributed t presence of some injurious material.

2602. **Schaertler,** L. Diastase. (Chemisches Central-Blatt, Hamburg and Leipzig, 1887, p. 534.) **PK**

Pure diastase is obtained by extracting malt with very dilute $NaHCO_3$ solution an purifying by 2 successive precipitations wit alcohol.

Also abstracted in *Jour. chem. soc.*, 1887, v. 52, 1117.

ylases, continued.

ification, continued.

3. **Wilson,** J. Arthur. Note on the prep-
tion of diastase. (Chemical news, Lon-
., 1880, v. 62, p. 227.) **PKA**

)iastase is extracted from malt with 10%
hol, precipitated with absolute alcohol,
ified by reprecipitation and dried over
sphoric acid.

bstract in *Chem. Centr.,* 1891, Bd. 1, p. 33;
esber. Chem., 1890, p. 2364.

4. **Szilágyi,** Julius. Über Diastase.
emiker-Zeitung, Cöthen, 1891, Jahrg. 15,
49–351.) †† **VOA**

)iastases were prepared from barley and
malts by digesting the malt with 20%
hol, precipitating with more concen-
ed alcohol, drying the precipitate and
oving salts by dialysis. Gives elemen-
analysis and relative saccharogenic
vity of the two preparations. Oat dia-
e exhibited slightly greater activity.

bstract in *Jour. soc. chem. ind.,* 1891, v. 10, p.
Chem. Centr., 1891, Bd. 1, p. 829; *Wag. Jahr.,*
, Jahrg. 37, p. 969.

5. **Yegorov,** I. V. La diastase du blé.
trait.) (Société chimique de Paris, Bul-
n, 1894, série 3, tome 12, p. 843–844.)
PKA

Vheat malt is extracted with 30% alco-
and the diastase purified by fractional
cipitation with absolute alcohol. Gives
nentary analysis of the diastase and of
ash.

bstracted in *Chem. Centr.,* 1893, Bd. 2, p. 212;
. chem. soc., 1893, v. 64, part 1, p. 743.

6. **Osborne,** Thomas B. The chemical
ure of diastase. (American Chemical So-
y, Journal, Easton, 1895, v. 17, p. 587–
.) **PKA**

y successive precipitation with ammon-
sulphate and dialysis followed by frac-
al precipitation by dialyzing against al-
ol, obtains from barley extract a pre-
ation exhibiting a saccharogenic activity
00 on Lintner's scale. Gives elementary
lysis. Believes the amylolytic enzyme
a combination of albumin with some
er substance.

bstract in *Jour. soc. chem. ind.,* 1896, v. 15, p.
Chem. Centr., 1895, Bd. 2, p. 571.

7. **Yegorov,** I. V. Sur la diastase de
ge. (Extrait.) (Société chimique de
is, Bulletin, Paris, 1896, série 3, tome
p. 202–203.) **PKA**

rimarily intended as a study of the P
tent. Attempts to purify amylase by a
es of alcohol precipitations and dialysis.
lysis in acid or neutral solutions did not
ct a complete removal of ash or P and
he same time the saccharogenic activity
decreased. The diffusate contains P and exhibits saccharogenic activity, although failing to give the albumin reaction with Millon's reagent. Determines nature of amylase prepared by precipitation from an acid or alkaline alcohol extract of malt. The proportion of P does not appear to have an influence on the saccharogenic activity.

2608. **Osborne,** Thomas B., and George F. Campbell. The chemical nature of diastase. (American Chemical Society, Journal, Easton, 1896, v. 18, p. 536–542.) **PKA**

A continuation of earlier work on the purification of amylase *(entry 2606).* Find that purification of amylase increases its sensitiveness to external conditions. Under certain conditions the presence of NaCl markedly increases amylolytic activity. The amount of albumin present corresponds roughly to the activity of the preparation.

Abstract in *Jour. soc. chem. ind.,* 1897, v. 16, p. 155; *Jour. chem. soc.,* 1896, v. 70, part 1, p. 716; *Chem. Centr.,* 1896, Bd. 2, p. 251.

2609. **Osborne,** Thomas B. Die chemische Natur der Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1898, Jahrg. 31, p. 254–259.) **PKA**

A reply to recent articles of Wróblewski.

Abstract in *Jour. chem. soc.,* 1898, v. 74, part 1, p. 286; *Chem. Centr.,* 1898, Bd. 1, p. 898; *Bull. soc. chim. Paris,* 1898, série 3, tome 20, p. 635.

2610. **Seyffert,** H. Researches on barley malt diastase. (Abstract.) (Society of Chemical Industry, London, Journal, 1898, v. 17, p. 681.) † **VOA**

Makes several extractions of malt with lead acetate and with alcohol. Defines the term "diastatic unit." Obtains certain products with diastatic power higher than previously attributed to pure diastase and with a nitrogen content indicating a relation to leucosine.

2611. **Wróblewski,** Augustin. Was ist Osborne'sche Diastase? (Deutsche chemische Gesellschaft, Berichte, Berlin, 1898, Jahrg. 31, p. 1127–1130.) **PKA**

Abstract in *Chem. Centr.,* 1898, Bd. 2, p. 49.

2612. —— Ueber die chemische Beschaffenheit der amylolytischen Fermente. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1898, Jahrg. 31, p. 1130–1136.) **PKA**

By fractional precipitation with ammonium sulphate, amylase was obtained free from pentosans. The properties observed indicate that it is a proteid. Takadiastase was also found to have the properties of a proteid.

Abstract in *Jour. chem. soc.,* 1898, v. 74, part 1, p. 500; *Jour. soc. chem. ind.,* 1898, v. 17, p. 682; *Chem. Centr.,* 1898, Bd. 2, p. 49; *Bull. soc. chim. Paris,* 1899, série 3, tome 22, p. 669.

Amylases, continued.

Purification, continued.

2613. **Yvon,** M. Sur l'amylase. (Institut Pasteur, Annales, Paris, 1899, tome 13, p. 523–528.) **QDA**

Details methods for preparation of an active malt preparation.

Abstract in *Wag. Jahr.*, 1900, Jahrg. 46, p. 385.

2614. **Friedenthal,** Hans. Beiträge zur Kenntnis der Fermente. (Archiv für Anatomie und Physiologie, Leipzig, 1900, Physiologische Abteilung, 1900, p. 181–194.)

Available in Library of the New York Academy of Medicine.

By salting out an amylase solution, obtains an active substance with the properties of a nucleoproteide; the same results are obtained with pancreatin solutions. Suggests that the enzymes may be nucleoproteids.

Abstract in *Chem. Centr.*, 1900, Bd. 1, p. 1136.

2615. **Croftan,** Alfred C. Vorläufige Mitteilung über das diastatische Ferment der Nebennieren. (Archiv für das gesammte Physiologie, Pflüger's, Bonn, 1902, Bd. 90, p. 285–289.) **QCA**

By precipitation with ammonium sulphate from the aqueous extract of suprarenal capsules, obtains a substance which saccharifies starch.

Abstract in *Jour. chem. soc.*, 1902, v. 82, part 2, p. 465; *Chem. Centr.*, 1902, Bd. 1, p. 1407.

2616. **Lintner,** Carl J. Zur Isolierung der Malzenzyme und über das proteolytische Enzyme des Malzes. (Zeitschrift für das gesammte Brauwesen, München, 1902, Jahrg. 25, p. 365–368.) **† VTRA**

By the use of ammonium sulphate obtains a preparation with saccharogenic activity of 143.

Abstract in *Chem. Centr.*, 1902, Bd. 2, p. 288.

2617. **Fraenkel,** Sigmund, and MAX HAMBURG. Über Diastase. 1. Versuche zur Herstellung von Reindiastase und deren Eigenschaften. (Beiträge zur chemischen Physiologie und Pathologie, Braunschweig, 1906, Bd. 8, p. 389–398.)

Available in Library of Columbia University.

Prepare amylase free from reducing sugars and albumin by treating malt extract with a calculated amount of basic lead acetate, filtering, fermenting the filtrate, concentrating by evaporation under reduced pressure and subsequently drying in an absolute vacuum over sulphuric acid. The amylase is completely precipitated by addition of colloidal ferric hydroxide. The enzyme does not migrate under the influence of an electric current although the solutions contain minute particles as shown by examination under the ultramicroscope. By dialysis, have partially separated the amyloclastic and saccharogenic enzymes.

Abstract in *Jour. soc. chem. ind.*, 1906, v. 25, p. 945; *Jour. chem. soc.*, 1906, v. 90, part 1, p. 917; *Chem. Centr.*, 1906, Bd. 2, p. 804; *Wag. Jahr.*, 1906, Jahrg. 52, Abt. 2, p. 341; *Bull. soc. chim. France*, 1907, série 4, tome 2, p. 534–535; *Bull. assoc. chimistes*, 1906–07, tome 24, p. 725–727.

2618. **Butkewitsch,** W. Zur Frage über die Umwandlung der Stärke in den Pflanzen und über den Nachweis der amylolytischen Enzyme. (Biochemische Zeitschrift, Berlin, 1908, Bd. 10, p. 314–344.) **PPB**

The change of starch into sugar which is carried out by bark and wood is due to enzyme action, and the enzyme was obtained in concentrated form by precipitation of aqueous extracts with alcohol. The bark also inverts maltose. Various conditions, such as changes of temperature on the activity of the enzymes are described.

Abstract in *Jour. soc. chem. ind.*, 1908, v. 27, p. 822; *Chem. abst.*, 1909, v. 3, p. 792; *Chem. Zentr.*, 1908, Jahrg. 79, part 2, p. 334; *Bull. soc. chim. France*, 1908, série 4, tome 4, p. 1583.

2619. **Fellenberg,** Th. von. Über Invertase und Diastase im Honig. (Mitteilungen aus dem Gebiete der Lebensmitteluntersuchung und Hygiene, Bern, 1911, Bd. 2, p. 369–377.)

Available in Library of the Department of Agriculture.

The enzymes are precipitated by alcohol, separated by centrifuging, and their properties noted.

Abstract in *Jour. soc. chem. ind.*, 1912, v. 31, p. 197; *Chem. abst.*, 1912, v. 6, p. 2119; *Chem. Zentr.*, 1912, Bd. 1, p. 280.

2620. **Sherman,** Henry C., and M. D. SCHLESINGER. Studies on amylases: 3. Experiments upon the preparation and properties of pancreatic amylase. (American Chemical Society, Journal, Easton, 1911, v. 33, p. 1195–1204.) **PKA**

By means of a process involving extraction of the dry pancreas powder with 50% alcohol, repeated precipitation, and purification by dialysis in 50% alcohol, preparations having saccharogenic activities up to 3480 on the new scale, corresponding to over 5,000 on Lintner's scale, were obtained. The products show the composition and characteristic reactions of the proteins.

Abstract in *Jour. chem. soc.*, 1911, v. 100, part 1, p. 827; *Jour. soc. chem. ind.*, 1911, v. 30, p. 973; *Chem. Zentr.*, 1911, Bd. 2, p. 1156; *Bull. soc. chim. France*, 1912, série 4, tome 12, p. 299.

2621. **Loeb,** Walther. Einige Beobachtungen über die Pankreasdiastase. (Biochem-

ıylases, continued.

rification, continued.

ne Zeitschrift, Berlin, 1912, Bd. 46, p.
–130.) **PPB**

\ highly active preparation was obtained
shaking pancreas powder with water,
ıtrifuging, filtering, precipitating with
ohol, and drying over H_2SO_4. The amylo-
stic activity is considerably accelerated
the presence of phosphate mixtures.

Abstract in *Jour. chem. soc.*, 1912, v. 102, part 2,
188; *Chem. Zentr.*, 1912, Bd. 2, p. 2120.

2. Pribram, Ernst. Über Diastase. 2.
eitere Versuche zur Herstellung von
indiastase und deren Eigenschaften.
iochemische Zeitschrift, Berlin, 1912, Bd.
p. 293–302.) **PPB**

Sugars are removed from malt extract by
mentation in the presence of $CaCO_3$,
ich prevents accumulation of lactic acid,
fermented liquid is filtered, evaporated in
uo and separated from the Ca lactate
stals. Examination of the product fur-
r purified by dialysis against distilled
ter, indicated that the amylase was com-
sed of a polymeric carbohydrate acid
ociated with a polypeptide. Ultrafiltered
utions of the amylase exhibited a slight
vo-rotation.

Abstract in *Jour. soc. chem. ind.*, 1912, v. 31, p.
3; *Jour. chem. soc.*, 1912, v. 102, part 1, p. 927;
m. Zentr., 1912, Bd. 2, p. 1743; *Bull. assoc.
nistes*, 1912–13, tome 30, p. 765; *Chem. abst.*,
3, v. 7, p. 94, 1579.

3. Sherman, Henry C., and M. D.
HLESINGER. Studies of amylase. 4. Fur-
r investigations of the properties of pan-
atic amylase. (American Chemical So-
y, Journal, Easton, 1912, v. 34, p. 1104–
1.) **PKA**

Pancreatin is extracted with 50% alco-
the enzymes precipitated with a mix-
e of alcohol and ether, dissolved in wa-
precipitated by absolute alcohol, dis-
ved in 50% alcohol containing maltose,
yzed against 50% alcohol and precipi-
ed with an alcohol-ether mixture, the
perature being kept throughout at 20°
below. The product is examined for its
nbustion heat, elementary composition,
perature of coagulation, amylolytic and
teolytic activity and rate of deterioration.
e amylolytic activity is about 3,500 on the
scale, which corresponds approxi-
ely to 5,000 on the Lintner scale.

bstract in *Chem. Zentr.*, 1912, Bd. 2, p. 1035;
soc. chim. France, 1913, série 4, tome 14, p. 146.

4. Fraenkel, Sigmund. Die Theorie und
xis der Diastasen. (Oesterreichische
Chemiker-Zeitung, Wien, 1913, Jahrg. 16, p. 175.)

Available in Library of the Department of Agriculture.

Malt extract is treated with basic lead acetate, filtered, completely fermented and evaporated in vacuo. The preparation thus obtained does not give protein reactions, does not exhibit the Tyndall phenomenon and seems to be composed of a nitrogenous compound and a polymeric carbohydrate acid.

Abstract in *Chem. abst.*, 1914, v. 8, p. 349.

2625. Sherman, Henry C., and M. D. SCHLESINGER. Studies on amylases, 5. Experiments upon the purification of the amylase of malt. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 1617–1623.) **PKA**

Malt is extracted with water, dilute alcohol, or very dilute acid phosphate solution, the extract dialyzed, filtered and precipitated with alcohol or acetone in two stages, the first fraction being discarded. 38 preparations were made, 7 of which had powers 1200–1540 on their own scale (1800–2300 on Lintner's scale) or 3–4 times greater than any previously recorded. Several properties show the protein nature of the preparations.

Abstract in *Jour. soc. chem. ind.*, 1913, v. 32, p. 986; *Chem. abst.*, 1913, v. 7, p. 3976; *Chem. Zentr.*, 1913, Bd. 2, p. 1883; *Bull. soc. chim. France*, 1914, série 4, tome 16, p. 56.

2626. —— Studies on amylases. 9. Further experiments upon the purification of malt amylase. (American Chemical Society, Journal, Easton, 1915, v. 37, p. 643–648.) **PKA**

Malt extract, concentrated by evaporation in vacuo, is dialyzed, ammonium sulphate added, the precipitate dissolved in water, dialyzed as before, precipitated with alcohol in two stages, and the first fraction rejected. All operations are conducted at a temperature not exceeding 15°. Twenty-two preparations show a saccharogenic activity of 760–1570 on the new scale.

Abstract in *Jour. soc. chem. ind.*, 1915, v. 34, p. 371; *Chem. Zentr.*, 1915, Bd. 2, p. 31; *Bull. soc. chim. France*, 1915, série 4, tome 18, p. 491.

2627. Sherman, Henry C., and A. P. TANBERG. Experiments upon the amylase of Aspergillus oryzae. (American Chemical Society, Journal, Easton, 1916, v. 38, p. 1638–1645.) **PKA**

The amylase of Aspergillus oryzae exerts its maximum activity, both amyloclastic and saccharogenic, in a slightly acid medium. Neutral salts do not appreciably affect the saccharogenic activity of taka diastase but effect a measureable increase in amyloclas-

Amylases, continued.

Purification, continued.

tic activity. Preparations 30 times as active as taka diastase were obtained by extracting with water, precipitating with ammonium sulphate, dialyzing and precipitating fractionally with alcohol. These specimens contain about 10% N and show typical protein reactions.

Abstract in *Chem. abst.,* 1916, v. 10, p. 2355; *Chem. Zentr.,* 1916, Bd. 2, p. 1042; *Bull. soc. chim. France,* 1917, série 4, tome 22, p. 59.

2628. Sherman, Henry C., and D. E. NEUN. Proteolytic activity of pancreatic amylase preparations. (American Chemical Society, Journal, Easton, 1919, v. 41, p. 1855–1862.) **PKA**

Commercial pancreatin was purified as in their earlier experiments, except that in the final precipitation a lower concentration of ether was used, allowing the precipitation of a second fraction upon further addition of ether. Both fractions were tested for amylolytic and proteolytic activity. Although results were strongly influenced by unavoidable deterioration of the substances, the results indicate that a partial separation of protease and amylase was effected.

Abstract in *Chem. abst.,* 1920, v. 14, p. 188; *Chem. Zentr.,* 1920, Bd. 1, p. 657.

2629. Sherman, Henry C., and others. A further study of the process of purifying pancreatic amylase. By H. C. Sherman, I. D. Garard, and Victor K. LaMer. (American Chemical Society, Journal, Easton, 1920, v. 42, p. 1900–1907.) **PKA**

A study of factors causing destruction and loss of enzyme activity. Find about 50% amylolytic activity is lost by end of dialysis, about 45% in the final precipitation and separation and about 5% recovered in the final product. The precipitate which formed in the inner solution during dialysis showed very high proteolytic and little or no amylolytic activity.

Abstract in *Chem. abst.,* 1921, v. 15, p. 100; *Chem. Zentr.,* 1921, Bd. 1, p. 99; *Bull. soc. chim. France,* 1920, série 4, tome 28, p. 874.

2630. Fricke, R., and P. KAJA. Über Ferment-Reinigung durch Elektro-Dialyse und Elektro-Osmose, 1. Malz-Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1924, Jahrg. 57, p. 310–313.) **PKA**

Malt amylase was placed in the middle compartment of a 3 celled electrodialysis apparatus and an electric current passed until no further diffusion of electrolytes was observed. The original diastase solution was also subjected to electro-osmosis for 5 days in a 5 celled electroosmotic apparatus, and a migration of active material to the cathodal chamber noted. The preparations thus purified showed no protein reactions except Millons, a strongly positive carbohydrate test and an activity 2 to 4 times greater than the original, as measured by comparative time for disappearance of I reaction.

Abstract in *Chem. abst.,* 1924, v. 18, p. 1303; *Jour. soc. chem. ind.,* 1924, v. 43, p. 272B; *Chem. Zentr.,* 1924, Bd. 1, p. 1210.

2631. Fricke, R. Über die Reinigung von Malz-Diastase durch Elektrodialyse und Elektroosmose, 2. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1924, Jahrg. 57, p. 765–768.) **PKA**

Describes improved methods, including preparation of membranes and anode and regulation of acidity. Has obtained a diastase preparation with activity 6 times that of the original.

Abstract in *Jour. chem. soc.,* 1924, v. 126, part 1, p. 799; *Chem. Zentr.,* 1924, Bd. 2, p. 53.

2632–2634. Naylor, N. M., and others. Preparation and properties of amylase from germinated wheat and rye. By N. M. Naylor, Mabel Spencer and Margaret House. (American Chemical Society, Journal, Easton, 1925, v. 47, p. 3037–3039.) **PKA**

The amylases from germinated wheat and rye compare very favorably with amylase from malt described by Osborne and by Sherman on the following points: they are obtained by the same process of dialysis and fractional precipitation with alcohol; they give the typical protein tests and they show optimum activity at a corresponding range of H ion concentration in the starch substrate. — *Chem. abst.*

GENERAL CHARACTERISTICS OF AMYLASES

2635. Payen, A. Note sur le dernier Mémoire de M. Guérin-Varry. (Annales de chimie et de physique, Paris, 1835, série 2, tome 60, p. 441–444.) **PAA**

States certain facts concerning diastase which are considered as incontestable. Mentions the alteration of diastase when preserved in water, its specific action on starch, the absence of gases during conversion and the formation of a larger weight of sugar than the original starch due to fixation of water.

Reply by Guérin-Varry, *ibid.,* tome 61, p. 222–223; second reply by Payen, *ibid.,* p. 351–355.

Condensed in *Académie des sciences, Comptes rendus,* Paris, 1836, tome 2, p. 192–194, * *EO.*

nylases, continued.

neral Characteristics of Amylases, cont'd.

36. **Cohnheim.** Zur Kenntniss der zuck-
ildenden Fermente. (Archiv für path-
gische Anatomie und Physiologie, Vir-
ow's, Berlin, 1863, Bd. 28, p. 241–253.)

Available in Library of New York Acad-
y of Medicine.

37. **Dobell,** H. On the special action of
pancreas on fat and starch. (Royal So-
ty of London, Proceedings, 1867–68, v.
p. 209–213.) ***EC**

Notes that the starch saccharifying power
somewhat diminished after pancreas has
ed on fat. A stable preparation is ob-
ned by exhausting the water from pan-
as, mixing with malt powder and drying.
e preparation is termed pancreatin.

Abstract in *Jour. prakt. Chem.*, 1868, Bd. 54, p.
; *Bull. soc. chim. Paris,* 1869, nouv. série, tome
semestre 1, p. 506.

38. **Zulkowski,** K., and E. König. Über
n Charakter einiger ungeformten Fer-
nte. (Akademie der Wissenschaften zu
ien, Sitzungsberichte, Mathematisch-
turwissenschaftliche Classe, 1875, Bd. 71,
t. 2, p. 453–469.) ***EF**

Conclude that malt diastase and the fer-
nt of yeast very probably belong in the
ne category.

Abstract in *Chem. Centr.*, 1875, p. 276.

39. **Loew,** O. Über die chemische Natur
ungeformten Fermente. (Archiv für die
samte Physiologie, Pflüger's, Bonn, 1882,
. 27, p. 203–214.) **QCA**

Among other work, gives evidence that
amylolytic ferments of pancreas and
lt diastase are protein bodies of peptone
ture.

Condensed in *Chem. Centr.*, 1882, p. 399–400, 412–
; *Jahresber. Chem.*, 1882, p. 1251–1253.

40. **Bourquelot,** Em. Sur l'identité de la
stase chez les êtres vivants. (Journal de
armacie et de chimie, Paris, 1885, série 5,
ne 11, p. 367–374.)

Available in Library of Columbia Uni-
sity.

Maintains that plant and animal amylases
identical.

Abstract in *Jour. chem. soc.*, 1885, v. 48, p. 927;
m. Centr., 1885, p. 681.

1. **Detmer,** W. Das diastatische Fer-
nt der Pflanzen. (Amerikanische Bier-
uer, New York, 1885, Jahrg. 18, p. 403–
.)

Available in Library of the Patent Office.

2642. **Lintner,** Carl J. Studien über Diastase. (Journal für praktische Chemie, Leipzig, 1887, N. F., Bd. 36, p. 481–498.) **PKA**

Diastase from wheat has the same activity and N content as that from barley. Acids, alkalis and $CuSO_4$ inhibit the action of diastase. Gives evidence against the existence of separate starch saccharifying and starch liquefying ferments in malt extract. Prepares pure maltose by treating starch with precipitated diastase.

Abstract in *Jour. chem. soc.*, 1888, v. 54, p. 497; *Chem. Centr.*, 1888, p. 122; *Bull. soc. chim. Paris,* 1888, nouv. série, tome 49, semestre 1, p. 834; *Wag. Jahr.*, 1887, Jahrg. 33, p. 1016–1018.

2643. —— Über die chemische Natur der vegetabilischen Diastase. (Archiv für die gesammte Physiologie, Pflüger's, Bonn, 1887, Bd. 40, p. 311–314.) **QCA**

Referring to article of Hirschfeld *(entry 2600)*, maintains that purified diastase contains N and does not possess the characteristics of a gum.

Abstract in *Chem. Centr.*, 1888, p. 120.

2644. **Jager,** L. de. Iets over den invloed van bacteriën op de digestie. (Centralblatt für Bakteriologie und Parisitenkünde, Jena, 1888, Bd. 4, p. 172–173.)

Available in Library of the New York Academy of Medicine.

Evidence indicating that the starch hydrolyzing enzyme of saliva can be isolated and that its action is not dependent on the presence of bacterial organisms.

Abstract in *Chem. Centr.*, 1888, p. 1275.

2645. **Reychler,** Albert. La saccharification diastasique. (Société chimique de Paris, Bulletin, 1889, série 3, tome 1, semestre 1, p. 286–295.) **PKA**

Albumenoids of wheat gluten are dissolved on treatment with acidic solutions. These gluten solutions show a marked diastatic property. Also finds that the presence of acid salts increases the action of soluble ferments.

Condensed in *Ber.*, 1889, Jahrg. 22, p. 414–419.

Abstract in *Jour. chem. soc.*, 1889, v. 56, p. 621; *Jour. soc. chem. ind.*, 1889, v. 8, p. 470; *Chem. Centr.*, 1889, Bd. 1, p. 521.

2646. —— Über künstliche Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1889, Jahrg. 22, p. 414–419.) **PKA**

Artificial diastase is obtained by heating fresh wheat gluten with dilute acid at 30° to 40°.

Condensed in *Jahresber. Chem.*, 1889, p. 2287–2288.

2647. **Armstrong,** Henry E. The terminology of hydrolysis, especially as affected

Amylases, continued.

General Characteristics of Amylases, cont'd.

by "ferments." (Chemical Society of London, Journal, 1890, v. 57, p. 528–531.) **PKA**

Recommends that the term "enzyme" be substituted for "organized ferment." Also suggests the term "amylo-hydrolyst" for an enzyme capable of hydrolyzing starch; the starch is termed the "hydrolyte."

Abstract in *Chem. Centr.*, 1890, Bd. 2, p. 247.

2648. Jager, L. de. Erklärungsversuch über die Wirkungsart der ungeformten Fermente. (Archiv für pathologische Anatomie und Physiologie, Virchow's, Berlin, 1890, Bd. 121, p. 182–187.)

Available in Library of the New York Academy of Medicine.

Iron and its magnetic properties are compared to certain enzymes. Describes experiments which lead the author to believe that pancreatin converts starch to sugar without actually being in contact with the starch solution.

Abstract in *Chem. Centr.*, 1890, Bd. 2, p. 246.

2649. Lintner, Carl J., and F. Eckhardt. Studien über Diastase. (Journal für praktische Chemie, Leipzig, 1890, N. F., Bd. 41, p. 91–96.) **PKA**

Compare the actions of malt amylase and the extract of ungerminated barley and wheat on starch. Results indicate a difference in the chemical nature of the two amylases. Discuss Reychler's artificial diastase *(entry 2645)*. A substance known as mucedin, obtained from gluten, was found to increase in diastatic activity when acted upon by acidic solutions. Suggest that this hypothetical substance be termed fermentogen or zymogen.

Abstract in *Jour. soc. chem. ind.*, 1890, v. 9, p. 318; *Jour. chem. soc.*, 1890, v. 58, p. 519; *Jahresber. Chem.*, 1890, p. 2360–2362; *Chem. Centr.*, 1889, Bd. 2, p. 845.

2650. Wijsman, H. P. La diastase considérée comme un mélange de maltase et de dextrinase. (Recueil des travaux chimiques des Pays-Bas, Leide, 1890, tome 9, p. 1–13.) **PKA**

Soluble starch is added to a gelatine solution and the solid transparent jelly which is formed is colored with iodine. Small quantities of diastase on the jelly produce two concentric rings, the inner supposedly due to the maltase and dextrinase and the outer to maltase.

Abstract in *Jour. soc. chem. ind.*, 1890, v. 9, p. 752; *Wag. Jahr.*, 1890, Jahrg. 36, p. 820; *Jahresber. Chem.*, 1890, p. 2362–2364.

2651. Krabbe, G. Untersuchungen über das Diasteferment unter specieller Berücksichtigung seiner Wirkung auf Stärkekörner innerhalb der Pflanze. (Centralblatt für Physiologie, Leipzig and Wien, 1891, Bd. 4, p. 192–194.)

Available in Library of the New York Academy of Medicine.

Abstract in *Jour. chem. soc.*, 1891, v. 60, p. 605; *Chem. Centr.*, 1890, Bd. 2, p. 395; *Wag. Jahr.*, 1890, Jahrg. 36, p. 820–821.

2652. Green, J. R. On vegetable ferments. (Pharmaceutical journal and transactions, London, 1892–93, v. 52, p. 946–949, 970–972, 991–994, 1047–1052.) **WTA**

Includes discussion as to nature of amylase.

2653. Ljubawin, N. N. Zu den Abhandlungen Jegorow's Über die Diastase. (Auszug.) (Chemisches Central-Blatt, Hamburg and Leipzig, 1893, Bd. 2, p. 212.) **PKA**

Confirms results of Jegerow (Yegorov) *(entry 2654)*. Suggests that phosphorus is in organic combination with diastase.

2654. Yegorov, I. V. Sur la diastase artificielle de Reychler. (Extrait.) (Société chimique de Paris, Bulletin, 1894, série 3, tome 12, p. 842–843.) **PKA**

Confirms the objections raised by Lintner and Eckhardt against the so-called artificial diastase of Reychler. The diastatic power of these slightly acid gluten solutions is attributed to the development of bacteria.

Abstract in *Chem. Centr.*, 1893, Bd. 2, p. 212; *Jour. chem. soc.*, 1893, v. 64, part 1, p. 744.

2655. Beijerinck, Martinus W. Über Nachweis und Verbreitung der Glucase, das Enzym der Maltose. (Centralblatt für Bakteriologie, Jena, 1895, Abt. 2, Bd. 1, p. 221–229.) **QDA**

Those enzymes which hydrolyze starch are called amylases and those amylases which convert starch into maltose and achrodextrin, granulases. These enzymes are investigated by a method of diffusion on gelatin-starch plates, using iodine and special yeasts to recognize the various hydrolytic products. The preparation, nature and occurrence of glucase is given.

Abstract in *Jour. soc. chem. ind.*, 1898, v. 17, p 259; *Chem. Centr.*, 1897, Bd. 1, p. 111; *Bull. assoc chimistes*, 1898–99, tome 16, p. 609–612.

2656. Dastre, A. Solubilité et activité des ferments solubles, en liqueurs alcooliques (Académie des sciences, Comptes rendus Paris, 1895, tome 121, p. 899–901.) ***EC**

Notes that the amylolytic enzyme of pancreas is soluble in 65% alcohol. Ptyalin amylase is less soluble. Has observed amylolytic activity in 20% alcohol.

Abstract in *Jour. chem. soc.*, 1896, v. 70, part 1 p. 398.

ylases, continued.

eral Characteristics of Amylases, cont'd.

7. **Hamburger,** Carl. Vergleichende
tersuchung über die Einwirkung des
eichels, des Pankreas- und Darmsaftes,
vie des Blutes auf Stärkekleister. (Archiv
die gesamte Physiologie des Menschen
der Tiere, Pflüger's, Bonn, 1895, Bd.
p. 543–577.) **QCA**

8. **Lott,** Frank E., and PERCY HUDSON.
ne experiments on the diastatic power
malt. (Federated Institutes of Brewing,
rnal, London, 1895, v. 1, p. 403–421.)
VTRA

bstract in *Chem. Centr.*, 1895, Bd. 2, p. 1100.

9. **Gruss,** J. Über Zucker- und Stärke-
lung in Gerste und Malz. (Wochen-
rift für Brauerei, Berlin, 1897, Jahrg. 14,
21–323.) **† VTRA**

onfirms the presence of three distinct
yme actions in germinating barley,
nely, a starch dissolving, a cell wall dis-
ving, and an inverting action.

bstract in *Jour. soc. chem. ind.*, 1897, v. 16, p.

0. **Heinzelmann,** G. Verhalten ver-
ieden ernährter Hefen in ihrer Gärwir-
g. Diastase als Hefenahrungsmittel.
itschrift für Spiritusindustrie, Berlin,
7, N. F., Jahrg. 20, p. 296, 311–312.)

vailable in Library of the Patent Office.

bstract in *Wag. Jahr.*, 1897, Jahrg. 43, p. 905–
Chem. Centr., 1898, Bd. 2, p. 146.

1. **Pawlewski,** Br. Über die Unsicher-
der Guajak-Reaktion auf wirksame Dia-
e. (Deutsche chemische Gesellschaft,
ichte, Berlin, 1897, Jahrg. 30, p. 1313–
4.) **PKA**

he guaiacum reaction is produced by
tone, gelatine, albumine, etc., as well as
amylase.

2. **Reinitzer,** Friedrich. Berichtigung
der Grüss'schen Arbeit: "Über Zucker
Stärkebildung in Gerste und Malz."
ochenschrift für Brauerei, Berlin, 1897,
rg. 14, p. 486–487.) **† VTRA**

he diastase of germinating barley pos-
es the property of dissolving certain
easily hydrolyzable hemicelluloses, and
warming to 60° this property is weak-
d but not completely annulled.

bstract in *Jour. soc. chem. ind.*, 1897, v. 26, p.
Chem. Centr., 1897, Bd. 2, p. 903.

. **Wróblewski,** Augustin. Ueber die
nische Beschaffenheit der Diastase und
das Vorkommen eines Arabans in den Diastasepräparaten. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1897, Jahrg. 30, p. 2289–2295.) **PKA**

Results indicate that the substance known as diastase is a mixture of a carbohydrate and an albumenoid.

Abstract in *Jour. soc. chem. ind.*, 1897, v. 26, p. 1031; *Jour. chem. soc.*, 1898, v. 74, part 1, p. 54; *Bull. soc. chim. Paris*, 1898, série 3, tome 20, p. 189.

2664. **Heinzelmann,** G. Die Zerstörung der Diastase während der Gährung. (Zeitschrift für Spiritusindustrie, Berlin, 1898, N. F., Jahrg. 21, p. 357.)

Available in Library of the Patent Office.

The diastatic power of a malt wort decreased 66.6% during its fermentation. Using potato starch, asparagin was found to shorten the period of fermentation and decrease the loss of diastatic power. The progressive destruction of diastase, during the mashing process, was determined.

Abstract in *Jour. soc. chem. ind.*, 1898, v. 17, p. 1063.

2665. **Seyffert,** H. Untersuchungen über Gerstenmalz-Diastase. (Zeitschrift für das gesammte Brauwesen, München, 1898, Jahrg. 21, p. 195–197, 207–209, 221–223, 611–617, 633–636.) **† VTRA**

Describes method for determination of saccharogenic activity. Notes that H_2S considerably decreases activity. Using 4 starches and dextrins as substrates, carries out determinations at various temperatures. Results indicate that in barley malt there are at least 3 enzymes which differ in their activity toward starch, soluble starch, erythrodextrin and amylodextrin; glucasic enzymes do not play an important part.

Abstract in *Jour. soc. chem. ind.*, 1899, v. 18, p. 158; *Chem. Centr.*, 1898, Bd. 2, p. 73–74, 1224–1225, 1291.

2666. **Sykes,** Walter J., and H. NEVILLE HUSSEY. Diastase: its preparation, nature, and estimation. (Federated Institutes of Brewing, Journal, London, 1898, v. 4, p. 527–545.) **VTRA**

A critical resume. Details of the contributions made by O'Sullivan, Lintner, Osborne, Wroblewski, Seyffert, and by Sykes and Mitchell, the latter being a detailed account of observations mentioned in an earlier note.

Abstract in *Jour. soc. chem. ind.*, 1898, v. 17, p. 1062; *Jour. chem. soc.*, 1899, v. 76, part 1, p. 313.

2667. **Petit,** Paul. Sur la diastase du malt. (Moniteur scientifique du docteur Quesneville, Paris, 1899, tome 53, p. 14–18.) **OA**

Discusses recent experiments and conclusions of Seyffert as to the presence of a number of enzymes in malt diastase.

Amylases, continued.

General Characteristics of Amylases, cont'd.

2668. **Seyffert,** H. Diastase des Gerstenmalzes. (Wochenschrift für Brauerei, Berlin, 1899, Jahrg. 16, p. 96–97.) **† VTRA**

Quantities of amylolytic preparations, prepared by six different methods, exhibited equal activities when tested by Lintner's method on soluble starch at 19°. These preparations showed wide divergencies when acting at higher temperatures on various starch products. This is attributed to the several enzymes present in diastase, which have different optimum temperatures and are obtained in differing amounts by the various methods of preparation.

Abstract in *Jour. soc. chem. ind.*, 1899, v. 18, p. 383; *Wag. Jahr.*, 1899, Jahrg. 45, p. 833–835.

2669. **Pozerski.** Action de quelques ferments solubles après refroidissement vers —191° au moyen de l'air liquide. (Société de biologie, Comptes rendus, Paris, 1900, tome 52, p. 714–716.) **QAA**

Notes that the activity of amylases is not decreased by previous cooling to 191° C.

2670. **Barth,** G. Untersuchung einiger käuflicher Diastasepräparate. (Zeitschrift für angewandte Chemie, Berlin, 1901, Jahrg. 14, p. 368–371.) **PKA**

By methods of Lintner determines saccharogenic and amyloclastic activity of 8 commercial preparations. Widely varying results are obtained. Some preparations appear to contain starch, dextrin and reducing sugars.

Abstract in *Jour. soc. chem. ind.*, 1901, v. 20, p. 490; *Jour. chem. soc.*, 1901, v. 80, part 1, p. 437; *Chem. Centr.*, 1901, Bd. 1, p. 1061.

2671. **Vernon,** H. M. The differences of action of various diastases. (Journal of physiology, London, 1902, v. 28, p. 156–174.) **QCA**

Studies action of various animal amylases under varying conditions. The course of hydrolysis is followed by means of iodine colorations and determinations of reducing power.

2672. **Lippmann,** Edmund O. von. Zur Nomenklatur der Enzyme. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1903, Jahrg. 36, p. 331–332.) **PKA**

Suggests that enzymes be denoted by a term signifying the substrate and a term signifying the substance formed. The names amylo-maltase, amylo-glucase, amylo-dextrinase, dextrino-glucase, and dextrino-maltase are proposed.

Abstract in *Jour. chem. soc.*, 1903, v. 84, part 1, p. 304; *Chem. Centr.*, 1903, Bd. 1, p. 555.

2673. **Vernon,** H. M. The precipitabilit of pancreatic ferments by alcohol. (Journa of physiology, London, 1903, v. 29, p. 302–334.) **QCA**

Concludes that activity is rapidly destroyed when alcohol is added to a glycero solution of pancreatic amylase.

2674. **Petit,** Paul. Influence de l'acidité su les enzymes. (Académie des sciences Comptes rendus, Paris, 1904, tome 138, p 1003–1004.) ***EO**

It is generally admitted that barley contains an enzyme which saccharifies, b does not liquefy starch paste, the liquefying action being only developed on germination the author, however, finds that the sam effect is produced by simply varying the acidity.

Abstract in *Jour. chem. soc.*, 1904, v. 86, part 1 p. 541; *Jour. soc. chem. ind.*, 1904, v. 23, p. 554.

2675. —— Action de la chaleur et de l'acidité sur l'amylase. (Académie des sciences, Comptes rendus, Paris, 1904, tome 138, p. 1231–1233.) ***EO**

Evidence of the formation of an insoluble compound of amylase and lactic acid.

Abstract in *Jour. soc. chem. ind.*, 1904, v. 23, p 616; *Jour. chem. soc.*, 1904, v. 86, part 1, p. 702; *Chem. Centr.*, 1904, Bd. 2, p. 48.

2676. —— Action de la chaleur et de l'acidité sur l'amylase dissoute. (Académie des sciences, Comptes rendus, Paris, 1904, tome 138, p. 1716–1718.) ***EO**

The coagulation of a malt amylase solution is dependent on the amount of acid present. Optimum amylolytic activity is exhibited at that acidity which determines the beginning of coagulation.

Abstract in *Jour. chem. soc.*, 1904, v. 86, part 1, p 839; *Chem. Centr.*, 1904, Bd. 2, p. 460.

2677. **Prior,** Eugen. Über neuere Maischverfahren. (Allgemeine Zeitschrift für Bierbrauerei und Malzfabrikation, Wien, 1904, Jahrg. 32, p. 285–290.)

Available in Library of the Brewers' Academy.

Gives evidence favoring the existence of two amylolytic enzymes in malt.

Abstract in *Chem. Centr.*, 1904, Bd. 2, p. 923.

2678. **Petit,** Paul. Quelques actions liquéfiantes et saccharifiantes sur l'empois d'amidon. (Académie des sciences, Comptes rendus, Paris, 1905, tome 141, p. 1247–1249.) ***EO**

Notes the presence of iron and traces of manganese in malt infusions. Commercial albumin mixed with ferrous, ferric and manganous oxides is capable of liquefying starch paste; lactic acid and asparagine in-

ylases, continued.

eral Characteristics of Amylases, cont'd.

ify the reaction and cause a slight sac-
ification.

bstract in *Jour. soc. chem. ind.*, 1906, v. 25, p.
Jour. chem. soc., 1906, v. 90, part 1, p. 67;
. *Centr.*, 1906, Bd. 1, p. 339; *Bull. assoc.*
istes, 1905–06, tome 23, p. 953.

. **Duclaux**, Jacques. Sur une propriété
diastases. (Académie des sciences,
nptes rendus, Paris, 1906, tome 143, p.
-346.) *EO

he action of weak acids and colloids is
to a certain variable active portion of
substance, which is not a direct function
he concentration. Suggests a possible
ogy in the behaviour of diastase.

eprinted in *Bull. assoc. chimistes*, 1906–07, tome
. 576–577.

bstract in *Jour. soc. chem. ind.*, 1906, v. 25, p.
Jour. chem. soc., 1906, v. 90, part 2, p. 660.

. **Tanaka**, Yoshio. On the hydrolytic
yme in the resting seeds of some gram-
e. (Tokio. — Imperial University: Col-
of Engineering, Journal, 1906–09, v. 4,
–52.) VDA

he amylase of millet has a higher opti-
n temperature than that of barley. The
ner shows a relatively strong liquefying
weak saccharifying power; the com-
d action of millet and barley amylases
luces more maltose than either enzyme
e.

bstract in *Jour. soc. chem. ind.*, 1908, v. 27, p.
Chem. abst., 1909, v. 3, p. 1993; *Jour. chem. soc.*,
, v. 94, part 1, p. 489; *Chem. Zentr.*, 1908, Bd.
2185.

. **Bierry**, H., and others. Étude du
sport électrique des ferments solubles.
H. Bierry, V. Henri, et G. Schaeffer.
ciété de biologie, Comptes rendus, Paris,
, tome 63, p. 226.) QAA

ote that pancreatic amylase migrates to
negative pole.

. **Emslander**, Fritz. Oberflächenein-
se beim Diastaseprozess. (Kolloid-Zeit-
ift, Dresden, 1907–08, Bd. 2, p. 308–310.)
PKA

he surfaces of the malt mixture and of
container are covered separately with
rs of inert substances and the effect
n amylolytic activity noted.

bstract in *Jour. soc. chem. ind.*, 1909, v. 28, p.
Chem. abst., 1909, v. 3, p. 222; *Chem. Zentr.*,
Bd. 1, p. 1995.

. **Schoendorff**, B., and C. Victorow.
r den Einfluss des Alkohols auf hy-
ysierende Enzyme. (Archiv für das gesammte Physiologie, Pflüger's, Bonn, 1907, Bd. 116, p. 495–516.) QCA

Note that the activity of amylase is not diminished by treatment with alcohol or by keeping at -21° for 5 days.

2684. **Lebedew**, A. Über die Wirkung von Wechselströmen auf die hydrolysierende Eigenschaft der Diastase und Mineralsäuren. (Biochemische Zeitschrift, Berlin, 1908, Bd. 9, p. 392–402.) PPB

A weak alternating current favors the saccharogenic action of amylase, whereas a direct current strongly inhibits the action. The hydrolysis of starch by acids was also favored by a weak alternating current. Six possible explanations are advanced.

Abstract in *Chem. abst.*, 1909, v. 3, p. 188; *Jour. chem. soc.*, 1908, v. 94, part 1, p. 321; *Bull. soc. chim. France*, 1908, série 4, tome 4, p. 1575; *Chem. Zentr.*, 1908, Bd. 1, p. 1712.

2685. **Brocq-Rousseu**, and Edmond Gain. Sur la présence de l'amylase dans les vieilles graines. (Académie des sciences, Comptes rendus, Paris, 1909, tome 148, p. 359–361.) *EO

Grains of wheat, 50 years old, which had lost their germinating power, were found to still contain diastases capable of transforming starch into sugar.

Abstract in *Chem. Zentr.*, 1909, Bd. 1, p. 1102.

2686. **Kudo**, T. Über den Einfluss der Elektrizität auf die Fermente. (Biochemische Zeitschrift, Berlin, 1909, Bd. 16, p. 233–242.) PPB

Finds the amyloclastic activity of ptyalin is decreased by passage of the galvanic current whereas an alternating current as well as a high tension current (Tesla current) show no inhibiting influence. Activity is measured by method of Wohlgemuth.

2687. **Loth**, Willi. Einige Beobachtungen über den Einflüss von Bakterien auf Diastase und Ptyalin. (Biochemisches Centralblatt, Leipzig, 1909, Bd. 8, p. 377.)

Available in Library of the New York Academy of Medicine.

2688. **Michaelis**, Leonor. Überführungsversuche mit Fermenten. 3. Malzdiastase. (Biochemische Zeitschrift, Berlin, 1909, Bd. 17, p. 231–234.) PPB

Migration in neutral, acid and alkaline solutions shows amylase to be amphoteric, more strongly positive than negative.

Abstract in *Jour. soc. chem. ind.*, 1909, v. 28, p. 537; *Jour. chem. soc.*, 1909, v. 96, part 1, p. 621; *Chem. abst.*, 1909, v. 3, p. 1773, 2502; *Chem. Zentr.*, 1909, Bd. 1, p. 1895.

2689. **Lyalin**, L. Enzymes of diastase. [Title translated.] (Russian Physical Chem-

Amylases, continued.

General Characteristics of Amylases, cont'd.

istry Society, Journal, St. Petersburg, 1910, tome 42, p. 624–633.)

Available in Library of the Chemists' Club.

Amylase was purified by precipitation with ammonium sulphate and its action compared with that of several commercial samples. A relation was noted between amyloclastic and saccharogenic activity.

Abstract in *Chem. abst.,* 1911, v. 5, p. 3833; *Bull. soc. chim. France,* 1911, série 4, tome 10, p. 680; *Chem. Zentr.,* 1910, Bd. 2, p. 1545.

2690. Porter, A. E. Über die Inaktivierung von Fermenten und die Entstehung von Antifermenten in Gegenwart von Kollodium- und anderen Membranen. (Biochemische Zeitschrift, Berlin, 1910, Bd. 25, p. 301–304.) **PPB**

Dialysis in a collodion membrane completely inactivates several enzymes but does not affect taka-diastase.

2691. Rosenthaler, L. Eiweiss als Schutzmittel für Enzyme. (Biochemische Zeitschrift, Berlin, 1910, Bd. 26, p. 9–13.) **PPB**

Notes that proteins protect amylase from destruction by acids and bases.

Abstract in *Jour. soc. chem. ind.,* 1910, v. 29, p. 835.

2692. Buraczewski, J., and others. Über Diastase. (Vorläufige Mitteilung.) Von J. Buraczewski, L. Krauze und A. Krzemecki. (Académie des sciences de Cracovie, Bulletin international, Classe des sciences mathématiques et naturelles, série A, 1911, p. 369–370.)

Available in Library of the New York Academy of Medicine.

Commercial diastase, suspended in alcohol and treated with Br or I, may be separated into an insoluble substance, which contains the halogen and a soluble carbohydrate, showing some similarity to starch.

Abstract in *Jour. soc. chem. ind.,* 1912, v. 31, p. 86; *Chem. abst.,* 1912, v. 6, p. 1757; *Jour. chem. soc.,* 1911, v. 100, part 1, p. 1052; *Chem. Zentr.,* 1911, Bd. 2, p. 1948.

2693. Chrzaszcz, Tadeusz. Neue Untersuchungen über Diastase. (Preliminary notice.) (Zeitschrift für Spiritusindustrie, Berlin, 1911, Jahrg. 34, p. 545.) **†† VTZA**

By fractional precipitation with ammonium sulphate, products having different properties may be obtained from diastase; concludes that diastase contains a saccharogenic and an amyloclastic enzyme.

Abstract in *Jour. soc. chem. ind.,* 1911, v. 30, p. 1401; *Chem. Zentr.,* 1911, Bd. 2, p. 1868.

2694. Lang, S. Über die Einwirkung der Pankreasdiastase auf Stärkearten verschiedener Herkunft. (Zeitschrift für experimentelle Pathologie und Therapie, Berlin, 1911, Bd. 8, p. 279–307.)

Available in Library of the New York Academy of Medicine.

Investigating the amyloclastic and saccharogenic action of pancreatic amylase on various starches, finds the two actions proceed independently. Oat starch which most slowly reaches the achromic point is most readily converted into sugars.

Abstract in *Chem. abst.,* 1911, v. 5, p. 105; *Chem. Zentr.,* 1910, Bd. 2, p. 1320.

2695. Chrzaszcz, Tadeusz, and K. Terlikowski. Über Versuche zur Trennung der Stärke verzuckernden von der Stärke verflüssigenden Kraft, sowie zur Feststellung der Stärke dextrinierenden und der Stärke ausfällenden Kraft der Getreideamylase. (Zeitschrift für Spiritusindustrie, Berlin 1912, Jahrg. 35, p. 635–636, 647–648, 661, 667, 671–672.) **†† VTZA**

Amylases of various grains were salted out from cold water extracts with 35–40% ammonium sulphate. The quantitative value of the amyloclastic activity of the amylases was found to be independent of the saccharogenic activity; the starch dextrinizing power appeared also to some extent independent of both. Due to the amylocoagulase, all of the amylases exhibited varying degrees of starch precipitating power.

Also in *Wochenschrift für Brauerei,* Berlin, 1912, Jahrg. 29, p. 590–593, 607–610, 623–626, 636–639.

Condensed in *Bull. assoc. chimistes,* 1912–13, tome 30, p. 491–492.

Abstract in *Jour. soc. chem. ind.,* 1912, v. 31, p. 1089; *Chem. abst.,* 1912, v. 7, p. 676; *Chem. Zentr.,* 1913, Bd. 1, p. 713.

2696. Panzer, Theodor. Einwirkung von Chlorwasserstoffgas auf Diastase. 1. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1912, Bd. 82, p. 276–325.) **PKA**

The dry HCl, absorbed by amylase, can be partially removed by exposure to vacuum, with a corresponding restoration of activity. The activity is not restored by simple neutralization with alkali.

Abstract in *Chem. Zentr.,* 1913, Bd. 1, p. 818–819; *Jour. soc. chem. ind.,* 1913, v. 32, p. 41; *Jour. chem. soc.,* 1913. v. 104, part 1, p. 113; *Chem. abst.,* 1913, v. 7, p. 1206.

2697. Punnett, P. W. The action of a high frequency current on the activity of pancreatic amylase. (Abstract.) (Biochemical bulletin, New York, 1912–13, v. 2, p. 555–556.) **PPB**

The saccharogenic activity was not decreased. The effect is directly opposite to that induced by the direct current.

Also abstracted in *Chem. abst.,* 1915, v. 9, p. 3072

ylases, continued.

eral Characteristics of Amylases, cont'd.

. **Bokorny,** Th. Die schädliche Wir- g der Enzyme; Versuche mit Hefe. gemeine Brauer- und Hopfenzeitung, nberg, 1913, Jahrg. 53, p. 2571–2572.)

vailable in Library of the Department griculture.

otes that amylase kills yeast and algae 8 hours.

bstract in *Chem. abst.*, 1919, v. 13, p. 1326; *chrift für Untersuchung der Nahrungs- . und ssmittel,* Berlin, 1917, Bd. 33, p. 451.

. **Chrzaszcz,** Tadeusz. Über die Malz- lase aus verschiedenen Getreidearten. ochenschrift für Brauerei, Berlin, 1913, g. 30, p. 538–541, 545–549.) **† VTRA**

rom a study of various amylases, con- es that there are 3 independent activi- involved, namely a dissolving, a dex- zing and a saccharifying activity.

ostract in *Chem. abst.*, 1914, v. 8, p. 199; *Chem. r.*, 1913, Bd. 2, p. 1993; *Bull. assoc. chimistes,* -14, tome 31, p. 532; *Wag. Jahr.*, 1913, Jahrg. Abt. 2, p. 386.

. **Durandard,** Maurice. L'amylase du zopus nigricans. (Académie des sciences, nptes rendus, Paris, 1913, tome 157, p. 474.) ***EO**

etermines influence of mass, time and perature on saccharogenic activity of amylase.

ostract in *Chem. Zentr.*, 1913, Bd. 2, p. 1595.

. **Lange,** H. What change does dia- e undergo with acidification of the sedi- ts and during the fermentation of the h in distilleries and yeast factories. (Ab- ct.) (Chemical abstracts, Easton, 1913, p. 2085.) **PKA**

. **Mohr,** Otto, and R. Kloss. Die Ar- en über Amylase in den letzten 10 en. (Wochenschrift für Brauerei, Ber- 1913, Jahrg. 30, p. 429–433, 438–440, 450.)

vailable in Library of the Brewers' demy.

detailed discussion on the occurrence, preparation and the properties of amy-

. **Panzer,** Theodor. Einwirkung von noniakgas auf Diastase. 3. (Zeitschrift physiologische Chemie, Hoppe-Seyler's, ssburg, 1913, Bd. 84, p. 161–188.) **PKA**

ne preparations are treated with NH_3 the NH_3 sbsequently removed by stor- in a vacuum. Certain chemical changes evidenced although there is no decrease ccharogenic activity.

stract in *Jour. soc. chem. ind.*, 1913, v. 32, p. *Jour. chem. soc.*, 1913, v. 104, part 1, p. 541; *Zentr.*, 1913, Bd. 1, p. 2160.

2704. —— Einwirkung von Chlorwasserstoff- und Ammoniakgas auf Diastase. 5. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1913, Bd. 85, p. 97–111.) **PKA**

Amylase loses its activity when saturated with dry HCl; subsequent saturation with NH_3 partially restores activity.

Abstract in *Jour. chem. soc.*, 1913, v. 104, part 1, p. 780; *Chem. Zentr.*, 1913, Bd. 2, p. 366.

2705. —— Einwirkung von Stickoxyd auf Diastase. 7. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1913, Bd. 85, p. 292–307.) **PKA**

A sample containing lactose absorbed 1.97–3.65% NO, while a purified sample absorbed 4.85–11.33%. The hydrolytic activity of the first was scarcely affected, the activity of the second was destroyed. In both cases the products gave the reaction of nitroso compounds.

Abstract in *Chem. Zentr.*, 1913, Bd. 2, p. 444; *Jour. soc. chem. ind.*, 1913, v. 32, p. 707.

2706. —— Einwirkung von Chlorwasserstoffgas auf eine durch Erhitzen veränderte Diastase. 9. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1913, Bd. 86, p. 322–339.) **PKA**

Amylase, inactivated by boiling its solution, is precipitated and dried. The absorption and subsequent removal of HCl by evacuation is the same as in the case of unmodified amylase, although there is an increase in acidity equal to the HCl absorbed, which was not true in the case of unmodified amylase.

Abstract in *Jour. soc. chem. ind.*, 1913, v. 32, p. 837; *Chem. Zentr.*, 1913, Bd. 2, p. 1311.

2707. —— Einwirkung von Ammoniakgas auf eine durch Erhitzen unwirksam gewordene Diastase. 10. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1913, Bd. 86, p. 401–406.) **PKA**

NH_3 has the same effect on amylase, which has been modified by heat, as on unmodified amylase.

Abstract in *Chem. Zentr.*, 1913, Bd. 2, p. 1312.

2708. —— Einwirkung von Chlorwasserstoff- und Ammoniakgas auf eine durch Erhitzen veränderte Diastase. 11. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1913, Bd. 87, p. 115–121.) **PKA**

Amylase, inactivated by heat, regains slight activity after successive treatments with dry HCl and NH_3.

Abstract in *Chem. Zentr.*, 1913, Bd. 2, p. 1689.

2709. Sherman, Henry C., and M. D. Schlesinger. Amylases. 6. Comparison of

Amylases, continued.

General Characteristics of Amylases, cont'd.

amyloclastic and saccharogenic powers. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 1784–1790.) **PKA**

The terms "amyloclastic" and "saccharogenic" are proposed as being more accurately descriptive of the phases usually designated as "liquefying" and "saccharifying." Using pancreatic amylase, find the amount of starch digested to disappearance of the blue iodine reaction is about twice that converted to maltose. The ratio remains fairly constant even when there are wide variances in the purity of the preparations, in the concentration of the activating salts and in the periods of digestion. Using malt amylase preparations, there is no indication of such a fixed ratio.

Abstract in *Chem. Zentr.,* 1914, Bd. 1, p. 269; *Bull. soc. chim. France,* 1914, série 4, tome 16, p. 161.

2710. Sherman, Henry C., and A. O. Gettler. Amylases. 7. The forms of nitrogen in amylase preparations from the pancreas and from malt, as shown by the Van Slyke method. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 1790–1794.) **PKA**

The five preparations examined yielded all of the 8 forms of nitrogen distinguishable by the Van Slyke method. Results are considered as furnishing additional evidence that purified amylase preparations are essentially protein substances.

Abstract in *Chem. Zentr.,* 1914, Bd. 1, p. 270; *Bull. soc. chim. France,* 1914, série 4, tome 16, p. 162.

2711. Laer, Henri van. Sur la nature de l'amylase. (Académie royale de Belgique, Bulletin, Classe des sciences, Bruxelles, 1913, p. 395–451.) *** EM**

A critical review.

Condensed in *Zeitschrift für das gesammte Brauwesen,* 1913, Jahrg. 36, p. 489–492, † *VTRA.*

Abstract in *Chem. abst.,* 1914, v. 8, p. 510; *Chem. Zentr.,* 1913, Bd. 2, p. 788.

2712. Bartholomew, E. T. Concerning the presence of diastase in certain red algae. (Botanical gazette, Chicago, 1914, v. 57, p. 136–147.) **QEA**

Corn starch is digested with the amylase of red algae. Results indicate that the diastase is not composed of a single enzyme but of a series of amylases and dextrinases.

Abstract in *Chem. abst.,* 1914, v. 8, p. 3067.

2713. Panzer, Theodor. Gewinnung einer diastatisch wirksamen Substanz aus Milchzucker. 12. (Zeitschrift für physiologische
Chemie, Hoppe-Seyler's, Strassburg, 1914
15, Bd. 93, p. 316–336.) **PK**

Lactose, treated with dry HCl, shows n
amylolytic activity and gradually loses HC
when stored in vacuo. When treated suc
cessively with dry HCl and dry NH_3
product is obtained which exhibits feebl
activity.

Abstract in *Jour. soc. chem. ind.,* 1915, v. 34,
443; *Chem. abst.,* 1915, v. 9, p. 918; *Chem. Zentr*
1915, Bd. 2, p. 179; *Bull. soc. chim. France,* 191
série 4, tome 26, p. 166.

2714. —— Diastasepräparate aus ver
schiedenen Kohlenhydraten. 13. (Zeit
schrift für physiologische Chemie, Hopp
Seyler's, Strassburg, 1914–15, Bd. 93,
339–354.) **PK**

Preparations with varying amylolytic a
tivity were obtained by action of dry HC
and NH_3 upon starch, soluble starch, dex
trin, gum arabic, cane sugar, grape sug
and galactose; fructose did not form a
active product. None of these substance
gave a more active preparation than lac
tose.

Abstract in *Jour. chem. soc.,* 1915, v. 108, part
p. 326; *Chem. Zentr.,* 1915, Bd. 2, p. 180; *Bull. so*
chim. France, 1919, série 4, tome 26, p. 167.

2715. Bokorny, Th. Beitrag zur Kenntni
der chemischen Natur einiger Enzyme
(Biochemische Zeitschrift, Berlin, 1915, B
70, p. 213–251.) **PP**

Gives general description of the proper
ties of amylase and determines amount o
NH_3, H_2SO_4 and methyl violet absorbed b
the enzyme.

Abstract in *Chem. abst.,* 1915, v. 9, p. 2907; *Bul*
soc. chim. France, 1917, série 4, tome 22, p. 49; *Chem*
Zentr., 1915, Bd. 2, p. 619.

2716. —— Einige neue Versuche übe
Diastase. (Allgemeine Brauer- und Hop
fen-Zeitung, Nürnberg, 1915, Jahrg. 55,
431–432.)

Available in Library of the Departmen
of Agriculture.

Finds amylase absorbs NH_3 from solu
tion, but does not absorb H_2SO_4. The pro
tein nature of the enzyme was further ind
cated by its behavior towards pepsin-HC

Abstract in *Chem. abst.,* 1915, v. 9, p. 1788.

2717. Born, S. Note on the starch-formin
enzyme from malt. (Journal of industri
and engineering chemistry, Easton, 1915,
7, p. 722.) **† VO**

Fails to confirm the experimental obse
vations of Davis *(entry 2719).*

2718. Panzer, Theodor. Über das Verha
ten verschiedener Stoffe gegen Stickoxy
14. (Zeitschrift für physiologische Chemi

ylases, continued.

eral Characteristics of Amylases, cont'd.

ope-Seyler's, Strassburg, 1914–15, Bd.
p. 378–395.) **PKA**

he behavior of a large number of com-
nds towards NO was investigated. Re-
s indicate that the active atomic group-
in each is different from that of amy-
.

bstract in *Bull. soc. chim. France,* 1919, série 4,
26, p. 167.

). **Davis,** Charles B. On a starch-
ning enzyme from malt; its action on
icelluloses and its commercial applica-
to brewing. (Journal of industrial and
ineering chemistry, Easton, 1915, v. 7,
15–118.) **VOA**

alt extract is heated to 81° to coagulate
diastase, filtered, and the "hemicellu-
" separated from the filtrate by two
essive precipitations with alcohol. The
yme has an optimum temperature of
° and is capable of converting 1000
es its weight of hemicellulose into
ch. Obtains 3.5% more beer by mash-
at 80°, cooling and adding a further
ntity of malt.

bstract in *Jour. soc. chem. ind.,* 1915, v. 34, p.
Chem. Zentr., 1915, Bd. 1, p. 1068.

). **Doby,** G., and J. Bodnar. Über
nzenenzyme. 3. Pathologische Verän-
ngen der Kartoffelamylase. (Bioche-
che Zeitschrift, Berlin, 1915, Bd. 68, p.
205.) **PPB**

esults indicated that the ferment exists
in the form of an enzyme and zy-
en.

bstract in *Jour. chem. soc.,* 1915, v. 108, part 1,
2; *Chem. Zentr.,* 1915, Bd. 1, p. 793; *Bull. soc.
France,* 1916, série 4, tome 20, p. 456.

, **Heintz,** L. Vergleichende Ausbeute-
uche mit besonderer Berücksichtigung
angeblichen "Hemizellutasetempera-
" (Wochenschrift für Brauerei, Berlin,
, Jahrg. 32, p. 270–271.)

vailable in Library of the Brewers'
demy.

ils to verify the experiments of Davis
ry 2719) as to the presence of a starch
ing enzyme.

. **Lintner,** Carl J. Über die Nichtex-
z eines stärkebildenden Enzymes
mizellutase" im Malz. (Wochenschrift
Brauerei, Berlin, 1915, Jahrg. 32, p. 269–
)

vailable in Library of the Brewers'
demy.

iticizes the work of Davis *(entry 2719).*

stract in *Chem. abst.,* 1915, v. 9, p. 2964.

2723. **Loeb,** Walther, and A. Sato. Die Beeinflussung von Enzymreaktionen durch die stille Entladung. (Biochemische Zeitschrift, Berlin, 1915, Bd. 69, p. 1–35.) **PPB**

Note that aqueous solutions of starch are hydrolyzed by the action of the silent discharge. A portion of the starch, however, appears to undergo polymerization. The activity of pancreatic amylase is decreased by the electrical treatment.

Abstract in *Chem. Zentr.,* 1915, Bd. 1, p. 1128.

2724. **Panzer,** Theodor. Einwirkung von Chlorwasserstoffgas auf Kohlenhydrate. 15. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1915, Bd. 94, p. 10–72.) **PKA**

Notes that carefully dried starch and dextrin form relatively simple addition compounds with HCl, the HCl being liberated upon solution in water. Vacuum treatment removes part of the HCl along with some organic matter.

Abstract in *Chem. abst.,* 1915, v. 9, p. 2242; *Jour. chem. soc.,* 1915, v. 108, part 1, p. 653; *Chem. Zentr.,* 1915, Bd. 2, p. 1180.

2725. **Petit,** Paul. Quelques observations sur l'amylase du malt. (Académie des sciences, Comptes rendus, Paris, 1915, tome 161, p. 39–40.) ***EO**

An acetone-water extract of malt loses ½ of its amylolytic activity the first 48 hours, the activity then remaining constant for about 20 days. Adds an acetone-ether mixture to the filtrate and dries the precipitate in vacuo; the substance shows marked amylolytic activity and is alkaline to methyl orange.

Abstract in *Jour. soc. chem. ind.,* 1915, v. 34, p. 973; *Chem. abst.,* 1915, v. 9, p. 3070; *Chem. Zentr.,* 1915, Bd. 2, p. 902.

2726. **Rakuzin,** M. A., and others. Limits of sensitiveness of color reactions for albumins and peptonizing enzymes. [Title translated.] By M. A. Rakuzin, Yek. M. Braudo and G. F. Pekarskaya. (Russian Physical Chemistry Society, Journal, Petrograd, 1915, tome 47, p. 2051–2056.) **PKA**

Include determination of the sensitivity of the amylase reaction towards buiret, xanthoproteins, and picramic acid and towards Molisch's reagent.

Abstract in *Chem. abst.,* 1916, v. 10, p. 1655; *Chem. Zentr.,* 1916, Bd. 2, p. 428.

2727. **Sherman,** Henry C., and M. D. Schlesinger. Studies on amylases. 10. Comparison of certain properties of pancreatic and malt amylase preparations. (American Chemical Society, Journal, Easton, 1915, v. 37, p. 1305–1319.) **PKA**

Compare optimum acidity, saccharogenic and amyloclastic activity, proteolytic activ-

Amylases, continued.

General Characteristics of Amylases, cont'd.

ity, rapidity of deterioration at various temperatures, effect of heat on dry enzyme, behavior in presence of substrate, chemical composition, color reactions, physical properties and deterioration during dialysis. Results show the enzymes are similar but not identical.

Abstract in *Chem. abst.*, 1915, v. 9, p. 1921–1922; *Chem. Zentr.*, 1915, Bd. 2, p. 350; *Bull. soc. chim. France*, 1915, série 4, tome 18, p. 577.

2728. **Windisch,** W., and H. Foerster. Über die angebliche "Hemizellutase" und ihre Nutzbarmachung beim Maischen zwecks Steigerung der Extraktausbeute. (Wochenschrift für Brauerei, Berlin, 1915, Jahrg. 32, p. 253–256.)

Available in Library of the Brewers' Academy.

Experiments in the laboratory and on a practical scale did not furnish the slightest indication of the existence in malt of an enzyme which changes hemicelluloses into starch under the conditions specified by Davis *(entry 2719)*. — *Chem. abst.*

2729. **Bruyne,** F. de. Variabilité dans l'activité de la ptyaline. (Archives néerlandaises de physiologie, La Haye, 1917–18, tome 2, p. 358–363.)

Available in Library of the New York Academy of Medicine.

Finds a periodicity in the saccharogenic activity of ptyalin at 35°.

2730. **Seymour,** R. J. The diastatic action of saliva in the horse. (American journal of physiology, Baltimore, 1917, v. 43, p. 577–585.) **QCA**

Horse saliva, both the mixed and isolated secretions of the parotid and submaxillary glands, contains a small amount of diastase capable of converting starch to sugar. Attempts to demonstrate the presence of a zymogen of diastase, by treatment of saliva with various reagents, failed. — *Chem. abst.*

2731. **Myers,** Rollin C., and Leonard C. Scott. Salivary amylase. 1. A preliminary experimental study of its stability in saliva. (American Chemical Society, Journal, Easton, 1918, v. 40, p. 1713–1716.) **PKA**

Salivary amylase in sterilized saliva was found to have retained at least 50% of its amyloclastic activity after standing for a year. The relative preserving actions of toluene, thymol and chloroform were determined.

Abstract in *Chem. abst.*, 1919, v. 13, p. 135; *Chem. Zentr.*, 1919, Bd. 1, p. 679; *Chimie et industrie*, 1919, v. 2, p. 666; *Bull. soc. chim. France*, 1919, série 4, tome 26, p. 124.

2732. **Bokorny,** Th. Beitrag zur Kenntnis der chemischen Natur der Enzyme. (Biochemische Zeitschrift, Berlin, 1919, Bd. 100, p. 100–113.) **PPB**

Includes an examination of malt amylase and taka-diastase for alkylamide N and for total N.

Abstract in *Chem. abst.*, 1920, v. 14, p. 2497.

2733. **Gathercoal,** E. N. The permanency and deterioration of some vegetable drugs twenty-five years of age. (American Pharmaceutical Association, Journal, Chicago, 1919, v. 8, p. 711–716.)

Available in Library of the New York Academy of Medicine.

Notes that a malt preparation, after preservation in glass stoppered bottles for 25 years, was able to convert 5 times its weight of starch.

2734. **Haehn,** H. Zur Kenntnis der Kartoffeldiastase der Knollen. (Zeitschrift für Spiritusindustrie, Berlin, 1919, Jahrg. 42, p. 241–242.) **†† VTZA**

The comparative stability of potato amylase in the presence of proteolytic enzymes indicates that it is not an ordinary protein compound.

Abstract in *Chem. Zentr.*, 1919, Bd. 3, p. 543.

2735. **Pringsheim,** Hans, and A. M. von Merkatz. Fermentversuche an Celluloseabbauprodukten. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Berlin and Leipzig, 1919, Bd. 105, p. 173–178.) **PKA**

Malt and pancreatic amylases were without action on a dextrin prepared from cellulose.

Abstract in *Chem. abst.*, 1919, v. 13, p. 3199; *Chem. Zentr.*, 1919, Jahrg. 90, Bd. 3, p. 635.

2736. **Hahn,** Amandus, and Karl Harpuder. Über den Einfluss neutraler Alkalisalze auf diastatische Fermente. (Zeitschrift für Biologie, München and Berlin, 1920, Bd. 71, p. 287–310.) **QAA**

Have investigated optimum pH for malt diastase and ptyalin; influence of various neutral alkali salts, with and without buffers, upon saccharogenic activity; the electrical migration of enzymes in presence of salt mixtures and the effect of these salts on isoelectric point of the enzymes.

Results show that the isoelectric point of the enzymes can be changed by the action of neutral salts without an appreciable change in activity or in the value of the reaction optimum. The electrolytic nature of these enzymes, therefore, has little influence on their activities.

Abstract in *Chem. abst.*, 1921, v. 15, p. 1537; *Chem. Zentr.*, 1921, Jahrg. 92, Bd. 1, p. 41.

lases, continued.

ral Characteristics of Amylases, cont'd.

. **Lowartz**, Carl. Die Diastase im
ensaft von Potamobius astacus L. (Fer-
tforschung, Leipzig, 1920, Bd. 3, p. 241–
) **PPH**

detailed account of experiments on the
stion of starch by the diastase of the
ric juice of the crayfish. The influence
alts, of the degree of dilution, and of
perature on the activity of the gastric
was investigated. The conclusion is
n that the effects observed are all due
he presence of a single amylolytic en-
e. — *Chem. abst.*

stract in *Chem. Zentr.*, 1920, Bd. 1, p. 475–477.

. **Maestrini**, Dario. Contributo alla
scenza degli enzimi. 5. La resistenza
ptialina all' azione di HCl in presenza
mido. (Reale accademia nazionale dei
ei, Atti, Roma, 1920, v. 29, semestre 2,
1–394.) ***ER**

arch paste protects mixed human saliva
the destructive action of HCl, the
est concentration of the latter which
nzyme is able to withstand for 3 hours
out irrecoverable loss of the amylo-
properties being 0.16%. The impor-
e of the substrate for the preservation
e enzymic activity of saliva is hence
ent. — *Chem. abst.*

stract in *Chem. Zentr.*, 1921, Bd. 3, p. 184;
soc. chim. France, 1921, série 4, tome 30, p.

. **Mohs**, K. Physical condition and
e of action of enzymes. (Brewer's jour-
London, 1920, v. 46, p. 516.) **VTRA**

discussion of the properties of amylase.
eves the amyloclastic and saccharogenic
mes are composed of the same protein
tance, differing only in their state of
idal distension.

stract in *Chem. Zentr.*, 1921, Bd. 3, p. 734.

Pastore, Salvatore. Azione della sa-
sull' amido in presenza di succo gas-
e di succo pancreatico. (Archivio di
acologia sperimentale e scienze affini,
, 1920, v. 30, p. 173–176, 177–184.)

ailable in Library of the New York
lemy of Medicine.

tes that starch protects amylase from
uction by the HCl of the gastric juice.

stract in *Chem. abst.*, 1922, v. 16, p. 3941;
Zentr., 1921, Bd. 3, p. 184.

vance report in *Atti della Reale accademia dei*
, Roma, 1920, serie 5, v. 29, semestre 2, p.
73.

Rona, Elisabeth. Über die Wirk-
eit der Fermente unter abnormen Be-
ngen und über die angebliche Aldehydnatur der Enzyme. (Biochemische Zeitschrift, Berlin, 1920, Bd. 109, p. 279–289.) **PPB**

Finds activity of enzymes is not affected by presence of compounds which normally react with aldehyde groupings. The action of amylase was not affected by presence of disodium sulphite.

Abstract in *Chem. abst.*, 1921, v. 15, p. 376; *Chem. Zentr.*, 1921, Bd. 1, p. 33.

2742. Biedermann, W. Ueber die Natur diastatischer Fermente. (Münchener medizinische Wochenschrift, München, 1921, Jahrg. 68, p. 692–693.)

Available in Library of the New York Academy of Medicine.

Human saliva contains a protein of albumose character which possesses diastatic activity. The reactions characteristic of this substance can be shown in various solutions having diastatic activity. — *Chem. abst.*

2743. Fenger, Frederic, and Mary Hull. The effect of age on pancreatic enzymes. (Journal of biological chemistry, Baltimore, 1921, v. 46, p. 431–435.) **PPB**

After 12 months storage the loss in diastase ranges from about 50% to almost complete inactivity.

2744. Herzog, Maximilian. The nature of enzymes. (Abstract.) (Chemical abstracts, Easton, 1921, v. 15, p. 691.) **PKA**

Evidence that amylase and other enzymes are living bodies. Observations include an ultramicroscopic examination and determination of the heat resistance of amylase.

2745. Maestrini, Dario. Contributo alla conoscenza degli enzimia. 6. Sul potere protettivo dell' amido e di altre sostanze sulla ptialina, in ambiente acido. (Reale accademia nazionale dei Lincei, Roma, Atti, 1921, v. 30, semestre 1, p. 315–318.) ***ER**

Determines ability of certain substances to protect ptyalin amylase against destruction by HCl. Egg albumin, ox-blood fibrin, almond oil and mutton fat exert a much weaker protective action than starch while animal charcoal exerts a markedly greater protective action than starch. Suggests that the action is due to simple adsorption of the enzyme.

Abstract in *Chem. abst.*, 1922, v. 16, p. 2151; *Bull. soc. chim. France*, 1922, série 4, tome 32, p. 166.

2746. —— Contributo alla conoscenza degli enzimi. 7: Sulla ricomparsa del potere amilolitico della saliva umana, abolito dall' acido cloridrico. (Reale accademia nazionale dei Lincei, Atti, Roma, 1921, serie 5, v. 30, semestre 2, p. 237–241.) ***ER**

The amylolytic activity of saliva completely disappears when digested with 0.6%

Amylases, continued.

General Characteristics of Amylases, cont'd.

HCl for 2–5 hours at 45–50°. If the liquid is neutralized activity returns after a number of days. Simultaneously with reappearance of enzyme activity there is noted a marked diminution in electrical conductivity. From further experiments concludes that the amylase is protected from acid destruction by adsorption on the mucin.

Abstract in *Chem. Zentr.*, 1922, Bd. 3, p. 841.

2747. Neill, A. J. Comparison of the rate of diffusion of certain substances, particularly the food materials, enzymes and proenzymes. (American journal of physiology, Baltimore, 1921, v. 57, p. 478–495.) **QCA**

Notes that salivary amylase does not diffuse through a collodion membrane.

2748. Windisch, W. Die Malze aus Gersten heuriger Ernte, insbesondere deren diastatische Kraft. (Wochenschrift für Brauerei, Berlin, 1921, Jahrg. 38, p. 221–223.)

Available in Library of the Department of Agriculture.

Results lead the author to believe that, within certain limits, the saccharogenic activity runs parallel to the amyloclastic activity.

Abstract in *Chem. Zentr.*, 1922, Bd. 2, p. 40.

2749. Baker, Julian L., and H. F. E. Hulton. Amylases of the cereal grains — the "insoluble" amylase of barley. (Chemical Society, London, Journal, 1922, v. 121, p. 1929–1934.) **PKA**

Evidence that the water insoluble amylase of barley, which is rendered soluble by proteolytic action, is associated with the alcohol soluble group of proteins. The amylase is pre-existent in the barley as an insoluble enzyme complex and when liberated exhibits the characteristic properties of the soluble amylase.

Abstract in *Chem. abst.*, 1923, v. 17, p. 1485; *Chem. Zentr.*, 1923, Jahrg. 94, Bd. 1, p. 1092; *Bull. soc. chim. France*, 1923, série 4, tome 34, p. 141.

2750. Biedermann, W. Über die Wirkung von Pepsin und Trypsin auf Diastase. (Biochemische Zeitschrift, Berlin, 1922, Bd. 127, p. 38–46.) **PPB**

In a series of carefully controlled experiments it was found that while pepsin attacks and retards diastatic activity this enzyme is resistant to trypsin. The importance of regulation of the pH is stressed. — *Chem. abst.*

2751. —— Die diastatische Wirkung von Albumosen und Aminosäure. (Archives néerlandaises de physiologie de l'homme et des animaux, La Haye, 1922, tome 7, p 151–156.)

Available in Library of the New York Academy of Medicine.

The atmid-albumoses, which resemble the albumoses of saliva in chemical properties show amylolytic activity, even after treatment with NaOH. Glycine, alanine and certain polypeptides show feeble diastatic activity.

Abstract in *Chem. abst.*, 1923, v. 17, p. 564 *Chem. Zentr.*, 1923, Bd. 1, p. 364; *Jour. soc. chem ind.*, 1923, v. 42, p. 370A.

2752. Bokorny, Th. Notizen über Hef und Aldehyd sowie Anderes. (Allgemeine Brauer- und Hopfen-Zeitung, Nürnberg 1922, Jahrg. 62, p. 1057–1060, 1149–1150.)

Available in Library of the Departmen of Agriculture.

Notes that powdered diastase fixes 10.2% of NH_3 but does not take up H_2SO_4.

Abstract in *Chem. abst.*, 1923, v. 17, p. 3347.

2753. Doumer, E. La conservation d l'amylase salivaire par la glycérine. (Sociét de biologie, Comptes rendus, Paris, 1922 tome 87, p. 678–679.) **QAA**

Human saliva diluted with an equal volume of distilled water was preserved with glycerol. Samples of this were tested from time to time in the course of several years for its amylolytic activity, which was found to be unaltered. It is well to note that no special precaution was taken as to the manner of preservation as the tubes were kep at various temperatures. — *Chem. abst.*

2754. Effront, Jean. Sur les propriété distinctives des amylases de différente provenances. (Académie des sciences Comptes rendus, Paris, 1922, tome 174, p 18–21.) ***EC**

Describes a method for determination o amyloclastic activity based on precipitation of starch by I. Using a number of enzym preparations, determines amyloclastic and saccharogenic activity at their respectiv optimum temperatures; determines influence of temperatures ranging from 20° t 100° and influence of filtration upon amyloclastic activity.

Abstract in *Chem. abst.*, 1922, v. 16, p. 125 *Chem. Zentr.*, 1922, Bd. 3, p. 177.

2755. —— Sur les propriétés distinctive des amylases de différentes provenance (Société de biologie, Comptes rendus, Paris 1922, tome 86, p. 274–275.) **QA**

Various amylases are differentiated b their solubility in water, solubility in a solution of NaCl, solubility in starch past optimum temperature of reaction, relatio of amyloclastic and saccharogenic activit

ylases, continued.

eral Characteristics of Amylases, cont'd.

on on achroodextrin, degree of resist-
: to the chemical action of the medium
degree of thermostability.

ostract in *Chem. Zentr.*, 1922, Bd. 3, p. 177.

. **Ohlsson,** Erik. Sur l'existence de
: ferments amylolytiques dans la dia-
e du malt. (Société de biologie, Comptes
lus, Paris, 1922, tome 87, p. 1183–1184.)
QAA

scribes the action of malt amylase to
individual enzymes, a "dextrinogenase"
a "saccharogenase." A method of sep-
ion is based on the fact that the dextrin-
iase is rapidly destroyed in a solution at
and the saccharogenase is completely
royed by heating at pH 6 for 20 minutes
)°.

ostract in *Chem. abst.*, 1923, v. 17, p. 1648;
. *Zentr.*, 1923, Bd. 3, p. 451.

. **Polleri,** Pio M. Jodoaffinità urinaria
milasi. (Pathologica, Genova, 1922, v. 4,
70–276.)

vailable in Library of the New York
demy of Medicine.

. **Sjöberg,** Knut. Beiträge zur Kennt-
der Amylase in Pflanzen. 1. Über die
ung und das Verhalten der Amylase in
nden Pflanzen. (Biochemische Zeit-
ift, Berlin, 1922, Bd. 133, p. 218–293.)
PPB

etermines amylase activity in different
s of a great number of plants at various
ods. Finds optimum pH for plant amy-
between 5 and 5.4. Determines amylase
gae grown in various media containing
ous substances. Finds no correlation
reen amylase activity and amount of
ch or sugar.

ostract in *Chem. abst.*, 1923, v. 17, p. 795; *Jour.
hem. ind.*, 1923, v. 42, p. 196A; *Chem. Zentr.*,
Bd. 3, p. 160.

. **Doumer,** E. Note sur le pouvoir
lolytique moléculaire de la salive. (So-
: de biologie, Comptes rendus, Paris,
, tome 89, p. 546–548.) **QAA**

nder carefully controlled conditions, a
ber of tubes containing 4% starch paste
incubated with 0.001% saliva and the
ose determined over a period of 12
ths. It is noted that the resulting mal-
can be expressed as multiples of a cer-
quantity. This quantity is therefore re-
ed as the molecular amylolytic power
yalin amylase.

stract in *Chem. abst.*, 1924, v. 18, p. 404;
. *Zentr.*, 1923, Bd. 3, p. 1039.

2760. **Ehrich,** E. Diastase eine Mischung von zwei Enzymen? (Allgemeine Brauer- und Hopfen-Zeitung, Nürnberg, 1923, Jahrg. 63, p. 795.)

Available in Library of the Department of Agriculture.

Reviews work of Nägeli, Maquenne, Biedermann and Wijsmann. The work cited indicates that at least two enzymes are involved in the degradation of starch.

Abstract in *Chem. abst.*, 1924, v. 18, p. 3387; *Chem. Zentr.*, 1924, Bd. 1, p. 1389.

2761. **Lintner,** Carl J., and Amalie Baur. Über ein zu 40% ausgemahlenes Gerstenmehl. (Zeitschrift für angewandte Chemie, Berlin, 1923, Jahrg. 36, p. 469–471.) **PKA**

The air-dried flour contained 70% starch. The amylase exhibited considerable saccharogenic activity. The action of barley amylase and rye amylase on their respective starches indicates that the former possesses a lower amyloclastic activity. This observation is due, in part, to a difference in the two starches.

Abstract in *Chem. Zentr.*, 1923, Bd. 4, p. 804; *Chem. abst.*, 1924, v. 18, p. 134.

2762. **Maestrini,** Dario. Contributo alla conoscenza degli enzimi. 9: Sulla resistenza all' invecchiamento di alcuni enzimi dell' orzo germogliato. (Reale accademia nazionale dei Lincei, Roma, Atti, 1923, serie 5, v. 32, semestre 1, p. 397–398.) ***ER**

Notes that the activity of amylase was not affected after 3 to 4 years.

2763. **Miehe,** Hugo. Über die Lebensdauer der Diastase. (Deutsche botanische Gesellschaft, Berichte, Berlin, 1923, Jahrg. 41, p. 263–268.)

Available in Library of Columbia University.

A sterile extract of 112–280 year old rye still hydrolyzes starch, although not so rapidly nor completely as an extract of fresh rye. A sample of old Egyptian emmer of the 18th dynasty has, however, lost its diastatic capacity. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1923, Bd. 3, p. 1171.

2764. **Sherman,** Henry C. An investigation of the chemical nature of two typical enzymes: pancreatic and malt amylases. (National Academy of Sciences, Proceedings, Washington, 1923, v. 9, p. 81–86.) ***EA**

Pancreatic and malt amylases differ in that their optimum activities are exhibited at pH 6.6 and 4.4 respectively. Pancreatic amylase loses its activity more rapidly than malt amylase when held in aqueous dispersion and is active within a narrower range of acidity.

Amylases, continued.

General Characteristics of Amylases, cont'd.

2765. Sjöberg, Knut. Über ein Amylasepräparat mit beschränktem Spaltungsvermögen. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Berlin and Leipzig, 1923, Bd. 131, p. 116–130.) **PKA**

By extraction of ground malt with H_2O and dialysis of the solution an enzyme preparation was obtained which converted only 60% of the starch into maltose. The remaining 40% could not be hydrolyzed by this enzyme to a stage where the color was negative. Addition of maltose or glucose retards the action of this amylase preparation. The unhydrolyzable residue after purification with EtOH showed $[\alpha]$158°, gave a blue color with I, and did not reduce Fehling's solution. The product is therefore not identical with the residual substance described by Pringsheim and Fuchs. — *Chem. abst.*

Abstract in *Jour. soc. chem. ind.*, 1924, v. 43, p. 28B; *Chem. Zentr.*, 1924, Bd. 1, p. 564.

2766. —— Beiträge zur Kenntnis der Amylase in Pflanzen. 3. (Biochemische Zeitschrift, Berlin, 1923, Bd. 142, p. 274–279.) **PPB**

Abstract in *Chem. Zentr.*, 1924, Bd. 1, p. 677.

2767. Windisch, W., and others. Untersuchungen über die stärkeverflüssigende Funktion der Malzdiastase. Von W. Windisch, W. Dietrich und Artur Beyer. (Wochenschrift für Brauerei, Berlin, 1923, Jahrg. 40, p. 49–50, 55–56, 61–63, 67–70.)

Available in Library of the Department of Agriculture.

Amylopectin, from wheat starch, is treated with malt extract at 60° in a buffer solution at pH 4.8, the liquid filtered, the filtrate hydrolyzed with HCl and the resulting dextrose determined iodemetrically. The amount of starch liquefied by 1 gr. of a malt is taken as a measure of its liquefying power. A number of determinations show that liquefaction follows Kjeldahl's law of proportionality, that optimum activity occurs at pH 5.03 and that the amyloclastic activity of malts does not bear a constant relation to their saccharogenic activity. Accepts the possibility of a second enzyme, dextrinase.

Abstract in *Jour. soc. chem. ind.*, 1923, v. 42, p. 513A; *Chem. Zentr.*, 1923, Bd. 4, p. 252–253; *Chem. abst.*, 1923, v. 17, p. 3400.

2768. Fricke, R., and P. Kaja. Über Inhomogenität und sonstige Eigenschaften von Malz-Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1924, Jahrg. 57, p. 313–316.) **PKA**

Compare amyloclastic and saccharogenic activities of commercial amylase and purified amylase preparations *(entry 2630)*. Viscosity measurements with potato starch a substrate show that the purified preparation is relatively low in amyloclastic activity. By action of trypsin, uranyl acetate an lead acetate obtain evidence that protein are not essential to amylolytic activity.

Abstract in *Chem. abst.*, 1924, v. 18, p. 1303 *Jour. soc. chem. ind.*, 1924, v. 43, p. 272B; *Chem Zentr.*, 1924, Bd. 1, p. 1210.

2769. Hizume, K. Zur Kenntnis der Diastasen. Zugleich ein Beitrag zur Frage de Zweienzymtheorie. (Biochemische Zeitschrift, Berlin, 1924, Bd. 146, p. 52–71.) **PP**

Investigates relation of amyloclastic t saccharogenic powers of salivary and ma amylases. Determines effect of dialysis, effect of blood serum, neutral salts, acids and alkalis, and effect of heating the enzymes in the presence of various substances. Results do not support the two enzyme theory

Abstract in *Chem. abst.*, 1925, v. 19, p. 85; *Chem Zentr.*, 1924, Bd. 2, p. 477; *Chimie et industrie*, 192 v. 13, p. 914.

2770. Jensen, B. C. P. The nutrient value and the enzyme content of 100 years old rice. (Abstract.) (Chemical abstracts, Easton, 1924, v. 18, p. 1517.) **PKA**

Notes the presence of amylase in the rice.

2771. Lecoq, Raoul. Dissemblances entre les ferments amylolytiques des différentes préparations d'orge germée. (Société de biologie, Comptes rendus, Paris, 1924, tome 91, p. 924–926.) **QAA**

From the fact that amylase preparations of definite titer have different temperatur optima with raw and boiled starch it is concluded that there is more than one kind o amylolytic enzyme present in various proportions in germinated barley. — *Chem. abst*

2772. Maignon, F. Recherches sur la constitution et le mode d'action des catalyseurs biochimiques ou diastases. — Des effets de l'électrolyse sur les diastases du suc pancréatique et l'amylase de l'orge germée (Académie des sciences, Comptes rendus Paris, 1924, tome 178, p. 420–423.) ***EO**

Finds that electrolysis is accompanied b coagulation at the anode and inactivation o the enzyme.

Also in *Société de biologie, Comptes rendus*, Paris 1925, tome 93, p. 400–403.

Abstract in *Chem. abst.*, 1924, v. 18, p. 1304 *Chem. Zentr.*, 1924, Bd. 1, p. 2787.

2773. Sherman, Henry C., and others. Th iso-electric point of malt amylase. By H. C Sherman, Arthur W. Thomas and Mary L Caldwell. (American Chemical Society *mylases, continued.*

eneral Characteristics of Amylases, cont'd.

urnal, Easton, 1924, v. 46, p. 1711–1717.) **PKA**

Using purified malt amylase preparations, ve investigated electrical migration of ac- ve material in solutions adjusted to a wide nge of H ion concentrations. Find a ange in direction of migration between I 4.3 and 4.5. On the acid side of this nge the enzyme migrates towards the thode and on the alkaline side to the ode. Discuss significance of fact that the electric zone coincides with the zone of timal activity.

Abstract in *Chem. abst.*, 1924, v. 18, p. 2724; *em. Zentr.*, 1924, Bd. 2, p. 2168.

74. **Chrzaszcz,** Tadeusz, and C. Goral- vna. Milchdiastase und ihre Eigenschaf- n. (Biochemische Zeitschrift, Berlin, 25, Bd. 166, p. 172–189.) **PPB**

Abstract in *Chem. abst.*, 1926, v. 20, p. 1873.

75. **Maignon,** F. Nouvelles recherches r l'électrolyse des diastases et leur teneur acide phosphorique et silice. (Académie s sciences, Comptes rendus, Paris, 1925, me 181, p. 51–54.) ***EO**

The loss of activity upon electrolysis is lieved to be due to dissociation of the gano-mineral constituent of the amylase. Abstract in *Chem. abst.*, 1925, v. 19, p. 2963.

76. **Sabalitschka,** Th., and C. Schulze. ber die Malzamylase. 1. Bestimmung der xtrinierenden und verzuckernden Wir- ng der Amylase. 2. Einfluss verschiedener Versuchsbedingungen auf die Amylase-Wirkung. (Fermentforschung, Berlin and Wien, 1925, Jahrg. 8, p. 428–448.) **PPH**

Abstract in *Chem. abst.*, 1926, v. 20, p. 53.

2777. —— Über die Amylase. 4. Einfluss von Kaffein und Aldehyden auf die dextrinierende und verzuckernde Wirkung der Amylase. (Fermentforschung, Berlin and Wien, 1925, Jahrg. 8, p. 464–473.) **PPH**

Abstract in *Chem. abst.*, 1926, v. 20, p. 53.

2778. **Syniewski,** Wiktor. Untersuchungen über Diastase. 1. Über die Nichteinheitlichkeit der Gerstenmalzdiastase. (Biochemische Zeitschrift, Berlin, 1925, Bd. 158, p. 87–120.) **PPB**

Abstract in *Chem. abst.*, 1926, v. 20, p. 210; *Chem. Zentr.*, 1925, Bd. 2, p. 1171–1172.

2779. —— Untersuchungen über Diastase. 2. Wirkt α-Diastase auch β-diastatisch, und umgekehrt β-Diastase auch α-diastatisch? (Biochemische Zeitschrift, Berlin, 1925, Bd. 162, p. 228–235.) **PKA**

α-diastase has not the least β-diastatic action. The slight β-diastatic action of barley extract is attributed to an admixture of β-diastase. Neither does β-diastase exert any α-diastatic action. The fact that heating to 60–61° of a β-diastase extract from barley does not entirely free this from α-diastase effects is ascribed to traces of α-diastase which escape destruction by heating.—*Chem. abst.*

2780. —— Diastase. (Abstract.) (Chemical abstracts, Easton, 1925, v. 19, p. 2502.) **PKA**

ACTIVATION AND INACTIVATION BY SALTS, ACIDS, ETC.

81. **Bouchardat,** G. Sur la fermentation ccharine ou glucosique. (Annales de imie et de physique, Paris, 1845, série 3, me 14, p. 61–68.) **PAA**

Gives a list of animal and plant materials hich act upon starch; the action of diastase, wever, is more vigorous than any of the bstances named. Determines influence of a mber of reagents on the activity of dia- se.

Reprint in *Annalen der Chemie und Pharmacie,* 46, Bd. 59, p. 80–87, *PKA.*

82. **Mulder,** E. Über das Verhalten der iastase gegen Eiweisskörper. (Auszug.) ahresbericht der Chemie, Giessen, 1858, 536–538.) **PKA**

83. **Dumas.** Sur les ferments apparte- nt au groupe de la diastase. (Académie des sciences, Comptes rendus, Paris, 1872, tome 75, p. 295–296.) ***EO**

Notes that borax inhibits the saccharogenic action of amylase.

Abstract in *Chem. Zentr.*, 1872, p. 567; *Bull. soc. chim. Paris,* 1872, nouv. série, tome 18, semestre 2, p. 298; *Wag. Jahr.*, 1872, Jahrg. 18, p. 547.

2784. **Peschechonow.** Ueber den Einfluss des Thymols auf einige thierische Fermente. (Pharmaceutische Zeitschrift für Russland, St. Petersburg, 1873, Jahrg. 12, p. 609–616.)

Available in Library of the Surgeon General's Office.

Notes that the action of saliva on starch is inhibited by phenol.

Abstract in *Chem. Centr.*, 1874, p. 38.

2785. **Nasse,** Otto. Untersuchungen über die ungeformten Fermente. (Archiv für die

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

gesamte Physiologie, Pflüger's, Bonn, 1875, Bd. 11, p. 138–166.) QCA

Notes that the action of diastases on starch is affected by various salts according to their nature and concentrations.

Abstract in *Jour. chem. soc.*, 1876, v. 29, p. 412; *Chem. Centr.*, 1876, p. 263.

2786. Munk, J. Zur Kenntniss der diastatischen Fermente. (Chemisches Central-Blatt, Leipzig, 1876, p. 822.) **PKA**

Investigates most favorable acidity or alkalinity for the action of enzymes on starch. The various animal amylases investigated showed marked differences in this respect.

Also abstracted in *Jour. chem. soc.*, 1877, v. 32, p. 351.

2787. Baswitz, M. Zur Kenntniss der Diastase. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1878, Jahrg. 11, p. 1443–1447.) **PKA**

Finds that a current of carbon dioxide favorably influences the formation of sugar, although carbon dioxide under pressure shows an unfavorable influence. Only a limited quantity of starch can be converted by a given amount of diastase.

Abstract in *Jour. chem. soc.*, 1878, v. 34, p. 903; *Jahresber. Chem.*, 1878, p. 1034, 1155; *Bull. soc. chim. Paris*, 1880, nouv. série, tome 33, semestre 1, p. 284–286; *Wag. Jahr.*, 1878, Jahrg. 24, p. 962.

2788. —— Zur Kenntniss der Diastase. (Zeitschrift für Spiritusindustrie, Berlin, 1878, N. F., Jahrg. 1, p. 199–201; 1879, Jahrg. 2, p. 321–325.)

Available in Library of the Patent Office.

Finds the presence of CO_2 accelerates the saccharifying action of diastase and causes a larger quantity of sugar to be formed.

2789. Defresne, T. Études comparatives sur la ptyaline et la diastase. (Académie des sciences, Comptes rendus, Paris, 1879, tome 89, p. 1070.) ***EO**

Notes that the actions of ptyalin and diastase are differently affected by the presence of gastric juice and dilute HCl.

Abstract in *Jour. chem. soc.*, 1880, v. 38, p. 330; *Chem. Centr.*, 1880, p. 75.

2790. Watson, William H. Notes on the effect of alcohol on saliva, and on the chemistry of digestion. (Chemical Society of London, Journal, 1879, v. 35, p. 539–544.) **PKA**

2791. Detmer, W. Vergleichende Untersuchungen über den Einfluss verschiedener Substanzen auf Pflanzenzellen und auf Fermente der Pflanzen. (Landwirtschaftliche Jahrbücher, Berlin, 1881, Bd. 10, p. 731–764.)

Available in Library of Columbia University.

Notes that the formation of sugar from starch by amylase is not affected by the presence of grape sugar, phenol, quinine hydrochloride, carraway oil and chloroform, while salicylic acid and copper sulphate destroy the action of amylase.

Abstract in *Jour. chem. soc.*, 1882, v. 42, p. 33 *Chem. Centr.*, 1882, p. 46.

2792. Bert, P., and P. Regnard. Action de l'eau oxygenée sur les matières organiques et les fermentations. (Académie des sciences, Comptes rendus, Paris, 1882, tome 94, p. 1383–1386.) ***EO**

Notes that the action of amylase is no affected by hydrogen peroxide.

2793. Chittenden, R. H., and J. S. Ely. In fluence of peptones and certain inorgani salts on the diastatic action of saliva. (American chemical journal, Baltimore, 1882–83, v. 4, p. 107–123.) **PKA**

2794. Chittenden, R. H., and Herbert E. Smith. The diastatic action of saliva, as modified by various conditions. (Connecticut Academy of Arts and Sciences, Transactions, New Haven, 1882–85, v. 6, p. 343–376.) ***EA**

Reprinted in *Sheffield Scientific School, Studies from the Laboratory of Physiological Chemistry.* New Haven, 1884–85, v. 1, p. 1–34, *PPB.*

2795. Detmer, W. Ueber den Einfluss der Reaction Amylum sowie Diastase enthaltender Flüssigkeiten auf den Verlauf des fermentativen Prozesses. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1882–83, Bd. 7, p. 1–6.) **PKA**

Using carbonic, citric, phosphoric and hydrochloric acids, finds an increased amyloclastic action in a slightly acid medium. The saccharogenic action is retarded by large quantities of phenol. Amylase shows no activity in an alkaline medium.

Abstract in *Jour. chem. soc.*, 1883, v. 44, p. 631 *Chem. Centr.*, 1883, p. 549.

2796. Langley, J. N., and F. Eves. On certain conditions which influence the amylolytic action of saliva. (Journal of physiology Cambridge, 1883, v. 4, p. 18–28.) **QCA**

Study action of HCl, Na_2CO_3 and peptone.

2797. Pfeiffer, E. Der Einfluss einige Salze auf verschiedene künstliche Ver-

lases, continued.
vation and Inactivation by Salts, Acids,
tc., continued.

ngsvorgänge. (Auszug.) (Jahresbe-
der Chemie, Giessen, 1884, p. 1474.)
PKA

e hydrolysis of starch by pancreas ex-
is markedly accelerated by NaCl. The
n of other salts is investigated.

Chittenden, R. H., and M. T. HUTCH-
r. Influence of uranium salts on the
olytic action of saliva and the proteo-
action of pepsin and trypsin. (Yale
ersity.—Sheffield Scientific School:
ratory of Physiological Chemistry,
es, New Haven, 1885–86, v. 2, p. 55–
PPB

Chittenden, R. H., and GEO. W.
MINS. The amylolytic action of dia-
of malt, as modified by various con-
ns, studied quantitatively. (Connecti-
Academy of Arts and Sciences, Tran-
ons, New Haven, 1885–88, v. 7, p. 44–
***EA**

print in *Sheffield Scientific School, Studies from*
Laboratory of Physiological Chemistry, New
, 1884–85, v. 1, p. 36–51, *PPB.*

—— Influence of bile, bile salts and
acids on amylolytic and proteolytic ac-
(American chemical journal, Balti-
, 1885–86, v. 7, p. 36–52.) **PKA**

print in *Sheffield Scientific School, Studies from*
Laboratory of Physiological Chemistry, New
, 1884–85, v. 1, p. 126–140, *PPB.*
stract in *Jahresber. Chem.,* 1885, p. 1836–1837.

Chittenden, R. H., and H. M.
TER. Influence of certain therapeutic
toxic agents on amylolytic action of
a. (Connecticut Academy of Arts and
ces, Transactions, New Haven, 1885–
7, p. 60–83.) ***EA**

Duggan, J. R. On the determination
iastatic action. (American chemical
al, Baltimore, 1885–86, v. 7, p. 306–
PKA

restigates presence of acids and alkalis,
of digestion and amount of enzyme as
rs in the conversion of starch to mal-

tract in *Jahresber. Chem.,* 1885, p. 1865–1866;
Centr., 1886, p. 344.

—— On the determination of abso-
neutrality. (American chemical journal,
nore, 1886, v. 8, p. 211–222.) **PKA**

The influence of mono- and polybasic
in the presence of their sodium salts,
ne conversion of starch by diastase.
2. The influence of alcohols on diastatic action.

Recommends observation of optimum diastatic activity as a method of determining absolute neutrality.

2804. Moritz, E. R. Wirkung der Salze des Brauwassers auf das Verhältniss von Maltose zu Dextrin in den Malzwürzen. (Amerikanische Bierbrauerei, New York, 1887, Jahrg. 20, p. 11–13.)

Available in Library of the Brewers' Academy.

2805. —— Über die Wirkung der Mineralbestandteile des Wassers auf das Verhältnis von Maltose und Dextrin in Malzwürzen. (Amerikanische Bierbrauer, New York, 1887, Jahrg. 20, p. 73–76, 132–136.)

Available in Library of the Brewers' Academy.

2806. —— Ueber die Wirkung von Chlorcalcium und Kochsalz auf das Verhältniss von Maltose und Dextrin in Malzwürzen. (Amerikanische Bierbrauer, New York, 1887, Jahrg. 20, p. 299–303.)

Available in Library of the Brewers' Academy.

2807. Leffmann, Henry, and WILLIAM BEAM. Effects of food-preservatives on the action of diastase. (Analyst, London, 1888, v. 13, p. 103–105.) **PKA**

Determine effect of salicylic and boric acids, sodium acid sulphite, saccharin, beta-naphthol and alcohol on the saccharogenic activity of maltine and Schuchardt's diastase. Also investigate effect of salicylic acid on pancreatic extract.

Abstract in *Chem. Centr.,* 1888, p. 1068; *Jahresber. Chem.,* 1888, p. 2500.

2808. Loew, O. Einige Bemerkungen über Enzyme. (Journal für praktische Chemie, Leipzig, 1888, N. F., Bd. 37, p. 101–104.) **PKA**

Determines effect of hydroxylamin and formaldehyde upon the action of diastase.

Abstract in *Jahresber. Chem.,* 1888, p. 2515.

2809. Martin, Sidney, and DAWSON WILLIAMS. The influence of bile on the digestion of starch. 1. Its influence on pancreatic digestion in the pig. (Royal Society of London, Proceedings, London, v. 45, 1888–89, p. 358–362.) ***EC**

Find that the presence of bile salts increases the formation of both dextrins and sugars. Dextrins and sugars are separated from starch by dialysis.

Abstract in *Chem. Centr.,* 1890, p. 401; *Jour. chem. soc.,* 1888, v. 54, p. 618.

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

2810. Schipiloff, Catherine. Recherches sur les ferments digestifs. 2. (Archives des sciences physiques et naturelles, Genève, 1889, série 3, tome 22, p. 314–352.)

Available in Library of Columbia University.

Notes that pepsin destroys the action of diastase.

Abstract in *Chem. Centr.*, 1890, Bd. 1, p. 46.

2811. John, O. Ueber die Einwirkung organischen Säuren auf die Stärkeumwandlung durch den Speichel. (Archiv für pathologische Anatomie und Physiologie, Virchow's, Berlin, 1890, Bd. 122, p. 271–283.)

Available in Library of the New York Academy of Medicine.

Notes that the action of saliva is favored by the presence of small amounts of organic acids.

Abstract in *Jour. chem. soc.*, 1891, v. 60, p. 592; *Chem. Centr.*, 1890, Bd. 2, p. 1022; *Jahresber. Chem.*, 1890, p. 2270.

2812. Kellner, O., and others. Beiträge zur Kenntnis der invertirenden Fermente. Von O. Kellner, Y. Mori und M. Nagaoka. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1890, Bd. 14, p. 297–317.) **PKA**

Notes that NaCl retards the amylolytic action of Koji extract.

Abstract in *Jour. chem. soc.*, 1890, v. 58, p. 281; *Chem. Centr.*, 1890, Bd. 1, p. 909.

2813. Martin, Sidney, and Dawson Williams. A further note on the influence of bile and its constituents on pancreatic digestion. (Royal Society of London, Journal, 1890, v. 48, p. 160–165.) ***EC**

The action of pancreatin is hastened by sodium taurocholate and sodium glycoholate, is arrested by glycocholic acid, is not affected by glycocine, and is hindered by leucine and tyrosine. Conclusions are based both on iodine reaction and on amount of sugar formed.

Abstract in *Jour. chem. soc.*, 1891, v. 60, p. 96.

2814. Mrotschkovsky, J. Zur Lehre von den nicht organisierten Fermenten. (Hygienische Rundschau, Berlin, 1891, Jahrg. 1, p. 324.)

Available in Library of the New York Academy of Medicine.

Phenol and iodoform did not appreciably influence amylolytic action, whereas very small concentrations of salicylic acid and $HgCl_2$ completely destroyed activity.

2815. Schierbeck, N. P. Der Einfluss d Kohlensäure auf die diastatischen und pe tonbildenden Fermente im tierischen O ganismus. (Skandinavisches Archiv f Physiologie, Leipzig, 1891–92, Bd. 3, p. 34 380.)

Available in Library of the New Yo Academy of Medicine.

The influence of CO_2 on the amylolyt activity of saliva and pancreas extract a pears to be due to the acidity produced.

Abstract in *Centralblatt für Physiologie*, 1892– Leipzig and Wien, Bd. 6, p. 742–744; *Chem. Cent* 1893, Bd. 1, p. 745; *Jour. chem. soc.*, 1893, v. part 2, p. 475.

2816. Arthus, Maurice, and Adolp Huber. Fermentations vitales et fermen tions chimiques. (Académie des science Comptes rendus, Paris, 1892, tome 115, 839–841.) ***E**

Ferments such as those of saliva a pancreas may be differentiated from livin organisms by the action of NaF. NaF d stroys living organisms whereas it does n affect the action of enzymes.

Abstract in *Chem. Centr.*, 1893, Bd. 1, p. 43.

2817. Effront, Jean. Sur les condition chimiques de l'action de la diastase. (Ac démie des sciences, Comptes rendus, Pari 1892, tome 115, p. 1324–1326.) ***E**

Finds that the addition of aluminiu salts, phosphates, asparagine and certai albumins exerts a favorable influence on th saccharifying action of amylase and th soluble ferment of A. oryzae.

2818. Ebstein, Wilhelm, and Carl Schulz Ueber die Einwirkung der Kohlensäure a die diastatischen Fermente des Tierkörper (Archiv für pathologische Anatomie un Physiologie, Berlin, 1893, Bd. 134, p. 475 500.)

Available in Library of the New Yor Academy of Medicine.

Note that in neutral solution, CO_2 hinder the amylolytic activity of saliva and par creas extract, whereas in alkaline solutio the CO_2 increases activity. Also investigat effect of phosphates, blood salts and lacti acid. Results are attributed to acidity e fects.

Abstract in *Jour. chem. soc.*, 1894, v. 66, part p. 103; *Chem. Centr.*, 1894, Bd. 1, p. 177.

2819. Effront, Jean. Sur les condition chimiques de l'action de la diastase. (Mon teur scientifique du docteur Quesnevill Paris, 1893, tome 41, p. 266–268.) **O.**

The nitrogenous by-product of glucos manufacture is found to accelerate the a tion of diastase on starch. The autho traces this effect to the presence of su *ıylases, continued.*

*tivation and Inactivation by Salts, Acids,
etc., continued.*

nces previously shown to exert this action
try 2817). The influence of asparagine
l of several salts upon the action of diastase
further investigated.

Reprinted in *Bull. soc. chim. Paris,* 1893, série 3,
e 9, p. 151–156.

Abstract in *Jour. soc. chem. ind.,* 1893, v. 12, p.
; *Chem. Centr.,* 1893, Bd. 1, p. 945.

20. Wood, R. W. The action of salts on
ds. (American chemical journal, Balti-
re, 1893, v. 15, p. 663–670.) **PKA**

ncludes observations on the action of
ds and alkalis on diastase.

21. Schierbeck, N. P. Zu W. Ebstein's
l C. Schulze's: "Über die Einwirkung der
hlensäure auf die diastatischen Fer-
nte des Tierkörpers." (Centralblatt für
ysiologie, Leipzig and Wien, 1894, Bd.
ɔ. 210–211.)

Available in Library of the New York
ademy of Medicine.

Abstract in *Chem. Centr.,* 1894, Bd. 2, p. 248.

22. Effront, Jean. Sur l'amylase. (Aca-
mie des sciences, Comptes rendus, Paris,
5, tome 120, p. 1281–1283.) ***EO**

A boiled infusion of malt increases the
charifying power of malt amylase but
es not appreciably affect the liquefying
ver. Describes method for comparison of
charifying and liquefying powers.

Abstract in *Jour. chem. soc.,* 1895, v. 68, part 2,
92; *Chem. Centr.,* 1895, Bd. 2, p. 163.

23. —— Contributions à l'étude de
nylase. (Moniteur scientifique du docteur
esneville, Paris, 1895, tome 46, p. 541–
, 711–725.)

Available in Library of Columbia Uni-
sity.

Studies rate of hydrolysis at various tem-
atures and nature of certain inactive sub-
nces which stimulate amylolytic action.
termines effect of acidity and tempera-
e on saccharogenic and amyloclastic ac-
ty.

Abstract in *Jour. soc. chem. ind.,* 1896, v. 15, p.
; *Chem. Centr.,* 1895, Bd. 2, p. 696–697, 1099.

24. Gruess, J. Einige neue Ergebnisse
Diastaseforschung. (Auszug.) (Che-
sches Central-Blatt, Hamburg and Leip-
1896, Bd. 1, p. 47.) **PKA**

Discusses activating and inhibiting action
salts and also detection of diastase by the
iacum-H_2O_2 reaction.

Also abstracted in *Jour. chem. soc.,* 1896, v. 70,
2, p. 59.

2825. Smet, de. Influence of mineral constituents of brewing-water on beer wort. (Abstract.) (Society of Chemical Industry, London, Journal, 1898, v. 17, p. 1065.) **† VOA**

From the experiments detailed, the author concludes that no injurious influence on the saccharification of the wort is exerted by sodium sulphate, calcium nitrate, or magnesium sulphate, nitrate or chloride.

2826. Ling, Arthur R. Malt. I. The ready-formed sugars of malts, and the action of diastase on barley starch. (Federated Institutes of Brewing, Journal, London, 1898, v. 4, p. 187–202.) **VTRA**

In the quantitative extraction of sugars from cereals an error is introduced due to the formation of maltose by the action of amylase. Discusses the use of HCl, KOH and lead acetate as inhibitors of enzymic action.

Abstract in *Jour. soc. chem. ind.,* 1898, v. 17, p. 478; *Chem. Centr.,* 1898, Bd. 2, p. 72.

2827. Moraczewski, W. von. Über die Enzyme. (Archiv für das gesammte Physiologie, Pflüger's, Bonn, 1898, Bd. 69, p. 32–75.) **QCA**

Notes effect of calcium salts on ptyalin and diastase.

Abstract in *Jour. chem. soc.,* 1898, v. 74, part 1, p. 285; *Chem. Centr.,* 1897, Bd. 2, p. 1187.

2828. Kuebel, F. Ueber die Einwirkung verschiedener chemischer Stoffe auf die Thätigkeit des Mundspeichels. (Archiv für die gesammte Physiologie, Pflüger's, Bonn, 1899, Bd. 76, p. 276–305.) **QCA**

Investigates effect of various substances on the amylolytic activity of ptyalin.

2829. Ling, Arthur R. Note on the methods of determining the diastatic capacity of malt. (Federated Institutes of Brewing, Journal, London, 1900, v. 6, p. 355–357.) **†† VTRA**

Malt extract is allowed to act on 2% starch solution and the products titrated with Fehling's solution.

Abstract in *Jour. soc. chem. ind.,* 1900, v. 19, p. 1029.

2830. Vernon, H. M. The conditions of action of pancreatic rennin and diastase. (Journal of physiology, London, 1901–02, v. 27, p. 174–199.) **QCA**

Studies activating effect of NaCl on pancreatic amylase.

2831. Gruetzner, P., and M. WACHSMANN. Über die Einwirkung verschiedener chemischer Stoffe auf die Thätigkeit des dia-

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

statischen Pankreasfermentes. (Archiv für das gesammte Physiologie, Pflüger's, Bonn, 1902, Bd. 91, p. 195–207.) **QCA**

Studies effect of salts, acids, bases, and organic compounds on the saccharogenic activity of pancreatin preparations. The pancreatic extracts of various animals are also investigated.

Abstract in *Jour. chem. soc.*, 1902, v. 82, part 2, p. 614; *Chem. Centr.*, 1902, Bd. 2, p. 946.

2832. **Mohr,** Otto. Zur Bestimmung der diastatischen Kraft nach Lintner. (Wochenschrift für Brauerei, Berlin, 1902, Jahrg. 19, p. 313.) **† VTRA**

Diastatic activity, as determined by Lintner's method, is only slightly affected by the presence of small amounts of asparagine, lactic acid and carbon dioxide at ordinary temperatures, although these substances exert a powerful influence at higher temperatures.

Abstract in *Jour. soc. chem. ind.*, 1902, v. 21, p. 931; *Chem. Centr.*, 1902, Bd. 2, p. 154.

2833. —— Einfluss der Kohlensäure auf die Diastase-Wirkung. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1902, Jahrg. 35, p. 1024–1029.) **PKA**

Confirms observation of Baswitz *(entry 2788)* that CO_2 favors the enzymic saccharification of starch and also finds that small quantities of lactic acid have a favorable influence. Notes that solution and saccharification of starch are two independent processes.

Reprinted in *Zeitschrift für Spiritusindustrie*, Berlin, 1902, N. F., Jahrg. 25, p. 69–71.

Abstract in *Bull. soc. chim. Paris*, 1902, série 3, tome 28, p. 855–856; *Jour. soc. chem. ind.*, 1902, v. 21, p. 359.

2834. **Wróblewski,** Augustin, and others. Zur Kenntnis der Einwirkung der Enzyme aufeinander. Von A. Wróblewski, B. Bednarski und M. Wojczyński. (Beiträge zur chemischen Physiologie und Pathologie, Braunschweig, 1902, Bd. 1, p. 290–313.)

Available in Library of Columbia University.

Note that trypsin and invertin do not affect the action of amylase, although the action is slightly inhibited by pepsin.

Abstract in *Jour. chem. soc.*, 1902, v. 82, part 1, p. 196; *Chem. Centr.*, 1902, Bd. 1, p. 272.

2835. **Tappeiner,** H. von. Über die Wirkung fluorescirender Substanzen auf Fermente und Toxine. (Deutsche chemische Gesellschaft, Berichte, Berlin, 1903, Jahrg. 36, p. 3035–3038.) **PKA**

The saccharogenic action of amylase is retarded by the presence of very small quantities of eosin in the sunlight. Eosin in the dark or the action of sunlight alone does not appreciably retard activity. Investigation of other fluorescent substances indicates that the effect is produced only by those substances whose light absorption lies in the green or blue part of the spectrum.

Abstract in *Jour. chem. soc.*, 1904, v. 86, part 1, p. 131; *Chem. Centr.*, 1903, Bd. 2, p. 928.

2836. **Cole,** Sydney W. Influence of electrolytes on amylolytic ferments. (Journal of physiology, London, 1904, v. 30, p. 202–220.) **QCA**

Saliva is purified by precipitation with alcohol and dialysis against distilled water. Activity is measured by time required for disappearance of the I reaction. Finds activity is increased by small amounts of HCl, while larger amounts inhibit the action. Various neutral salts increase activity, the effect of chlorides being greatest. Deduces an hypothesis based on these observations. Remarks that the ferment is destroyed by a certain concentration of H ion.

Abstract in *Chem. Centr.*, 1903, Bd. 2, p. 1455; *Jour. chem. soc.*, 1904, v. 86, part 1, p. 131.

2837. **Effront,** Jean. Sur l'amylase. (Moniteur scientifique du docteur Quesneville, Paris, 1904, tome 60, p. 561–565.) **OA**

Has repeated his earlier experiments and finds, contrary to observations of Ford *(entry 2838)*, that the stimulating action of asparagine or aspartic acid produces 8 or 9 times more maltose. The action of amino acids is independent of the temperature and degree of alkalinity. Glycine, sarcosine, alanine, leucine, glutamic acid, hippuric acid, creatinine, and creatine also favored amylolytic action.

Condensed in *Bull. soc. chim. Paris*, 1905, série 3, tome 31, p. 1230–1233.

Abstract in *Jour. soc. chem. ind.*, 1904, v. 23, p. 831; *Jour. chem. soc.*, 1904, v. 86, part 1, p. 1069; *Chem. Centr.*, 1904, Bd. 2, p. 767; *Bull. assoc. chimistes*, 1904–05, tome 22, p. 261.

2838. **Ford,** John S. Lintner's soluble starch and the estimation of "diastatic power." (Society of Chemical Industry, Journal, London, 1904, v. 23, p. 414–422.) **VOA**

Investigates phosphorus content, acidity and alkalinity of starches. Gives evidence that equally purified preparations of Lintner's soluble starch, from starches of different origin, will give the same maltose production, when treated with equal quantities of diastase. After determining the influence of lactic acid, alkali and asparagine, concludes that acids stimulate diastatic action only to the extent that they neutralize alkali present, which is strongly inhibitive; diastatic action attains its maximum in a neutral solution. Finds relative influence of *nylases, continued.*

tivation and Inactivation by Salts, Acids, etc., continued.

other substances. Small quantities of pper and mercury salts are fatal.

Abstract in *Jour. chem. soc.*, 1904, v. 86, part 2, 452; *Chem. Centr.*, 1904, Bd. 2, p. 645; *Jahresber. em.*, 1904, p. 1152, 2125; *Bull. assoc. chimistes,* 4–05, tome 22, p. 819–823; *Wag. Jahr.*, 1905, rg. 51, Abt. 2, p. 197.

39. **Somló**, Karl J., and Aladár von szlóffy. Einwirkung des Formaldehyds f die diastatische Kraft des Malzes. (Oes- reichische Chemiker-Zeitung, Wien, 04, Jahrg. 7, p. 126–128.)

Available in Library of the Department Agriculture.

Note that treatment with formaldehyde reases the amylolytic action of green lt.

Abstract in *Jour. chem. soc.*, 1904, v. 86, part 1, p. ; *Chem. Centr.*, 1904, Bd. 1, p. 1365.

40. **Windisch**, W., and H. Boden. Über n Einfluss des Gipses auf den Stärke- d Eiweissabbau beim Maischprozess. Vochenschrift für Brauerei, Berlin, 1904, rg. 21, p. 775–776, 787–789, 799–801, 823– , 835–838.) † VTRA

The addition of gypsum to the mashing ter exerts a retarding influence on the static action of the malt.

Abstract in *Jour. soc. chem. ind.*, 1905, v. 24, p. *Chem. Centr.*, 1905, Bd. 1, p. 305.

41. **Bierry**, H., and E. F. Terroine. Sur maltase du suc pancréatique de secrétine. cadémie des sciences, Comptes rendus, ris, 1905, tome 141, p. 146–147.) * EO

Note that a small amount of acid mark- y accelerates the saccharogenic activity the pancreatic fluid.

42. **Mohr**, Otto. Zur Kenntnis der Anti- sine. (Wochenschrift für Brauerei, Ber- , 1905, Jahrg. 22, p. 501.) † VTRA

Addition of heated diastase and pepsin utions did not markedly influence the charogenic activity of amylase.

Abstract in *Chem. Centr.*, 1905, Bd. 2, p. 1273.

3. **Sigmund**, Wilhelm. Die physiolo- chen Wirkungen des Ozons. (Central- tt für Bakteriologie und Parasitenkunde, a, 1905, Abt. 2, Bd. 14, p. 400–415, 494– , 627–640.) QDA

Notes that ozone inhibits the action of ylase.

Abstract in *Chem. Centr.*, 1905, Bd. 2, p. 839.

4. **Warcollier**, G. Cause de la présence quantités anormales d'amidon dans les pommes meurtries. (Académie des sciences, Comptes rendus, Paris, 1905, tome 141, p. 405–408.) * EO

Shows that the diastatic saccharification of starch paste is completely prevented by small amounts of gall-nut tannin or apple tannin.

Abstract in *Jour. soc. chem. ind.*, 1905, v. 24, p. 981; *Chem. Centr.*, 1905, Bd. 2, p. 1266; *Bull. assoc. chimistes*, 1905–06, tome 23, p. 1052.

2845. **Bierry**, H., and Giaja. Sur l'amylase et la maltase du suc pancréatique. (Académie des sciences, Comptes rendus, Paris, 1906, tome 143, p. 300–302.) * EO

Note that the amylase in pancreatic juice is completely inactivated when dialyzed in the presence of distilled water; the activity is restored upon addition of electrolytes. Optimum activity is exhibited in a slightly alkaline medium.

Abstract in *Chem. Centr.*, 1906, Bd. 2, p. 964.

2846. **Fernbach**, Auguste. Influence de la réaction du milieu sur l'activité des diastases. (Académie des sciences, Comptes rendus, Paris, 1906, tome 142, p. 285–286.) * EO

The author has previously shown that the conditions mentioned by Maquenne and Roux *(entry 2849)* are due to the presence of phosphates in the medium; in the absence of secondary phosphates the least addition of acid produces a marked retardation in amylolytic activity.

Abstract in *Jour. chem. soc.*, 1906, v. 90, part 1, p. 327; *Jour. soc. chem. ind.*, 1906, v. 25, p. 192; *Chem. Centr.*, 1906, Bd. 1, p. 861.

2847. **Ford**, John S., and John M. Guthrie. The influence of certain amphoteric electrolytes on amylolytic action. (Chemical Society of London, Journal, 1906, v. 89, p. 76–92.) PKA

Evidence that the starches used by Effront *(entry 2837)*, contained impurities and that the asparagine and similar substances merely acted to retard the inhibition due to these impurities. When using highly purified materials, it is found that asparagine, glycine and alanine exert a slightly favorable influence on diastatic action, which may possibly be due to the feeble acidity of soluble starch.

Abstract in *Jour. soc. chem. ind.*, 1906, v. 25, p. 228; *Chem. Centr.*, 1906, Bd. 1, p. 314; *Bull. soc. chim. France*, 1906, série 3, tome 36, p. 1293.

2848. **Goebel**, H. E. Ueber den Einfluss einiger Alkaloide und ihrer Salze auf die Wirkung des diastatischen Enzyms. (Zeitschrift für Spiritusindustrie, Berlin, 1906, N. F., Jahrg. 29, p. 85.)

Available in Library of the Patent Office.

The author has tested the influence of various alkaloids on the velocity of con-

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

version of starch by taka-diastase. The majority of the free alkaloids either retarded the action or left it unaffected.

Abstract in *Jour. soc. chem. ind.*, 1906, v. 25, p. 329.

2849. Maquenne, Léon, and Eugène Roux. Influence de la réaction du milieu sur l'activité de l'amylase et la composition des empois saccharifiés. (Académie des sciences, Comptes rendus, Paris, 1906, tome 142, p. 124–129.) ***EO**

Find enzymic saccharification proceeds most rapidly when the paste is neutral to methyl orange and the medium slightly alkaline; under these conditions they obtain 86–92% maltose.

Reprinted in *Bull. assoc. chimistes*, 1905–06, tome 23, p. 949–953.

Abstract in *Jour. soc. chem. ind.*, 1906, v. 25, p. 192; *Jour. chem. soc.*, 1906, v. 90, part 1, p. 327; *Jahresber. Chem.*, 1905–08, Bd. 2, p. 4670; *Wag. Jahr.*, 1906, Jahrg. 52, Bd. 2, p. 225; *Chem. Centr.*, 1906, Bd. 1, p. 550; *Bull. assoc. chimistes*, 1905–06, tome 23, p. 1043.

2850. —— Nouvelles recherches sur la saccharification diastasique. (Académie des sciences, Comptes rendus, Paris, 1906, tome 142, p. 1059–1065.) ***EO**

Find "optimum" conditions of alkalinity are most favorable for production of maltose. Saccharification finally reaches completion, although proceeding very slowly after 70–85% maltose has been formed. The medium undergoes a change in alkalinity during hydrolysis. Discuss chemical nature of amylase.

Abstract in *Jour. soc. chem. ind.*, 1906, v. 25, p. 601; *Jour. chem. soc.*, 1906, v. 90, part 1, p. 547; *Chem. Centr.*, 1906, Bd. 2, p. 138; *Bull. assoc. chimistes*, 1906–07, tome 24, p. 397.

2851. Schneidewind, W., and others. Über Enzyme. Von W. Schneidewind, D. Meyer und F. Münter. (Landwirtschaftliche Jahrbücher, Berlin, 1906, Bd. 35, p. 911–922.)

Available in Library of the Chemists' Club.

Find that alcohol and ether retard the action of amylase, while a favorable influence is shown by albuminoids, asparagine, peptone, alkali chlorides, and, at low concentrations, weak acids, monophosphates and aluminium phosphates.

Abstract in *Jour. soc. chem. ind.*, 1907, v. 26, p. 543; *Chem. abst.*, 1908, v. 2, p. 1027; *Jour. chem. soc.*, 1908, v. 94, part 2, p. 879; *Chem. Zentr.*, 1907, Bd. 1, p. 743; *Zeitschrift für das gesammte Brauwesen*, 1907, Jahrg. 30, p. 235.

2852. Bainbridge, F. A. The diastatic ferment in the tissues in diabetes mellitus. (Biochemical journal, Cambridge, 1907, v. 2, p. 89–95.) **PPB**

No evidence was obtained that the activity of the amylolytic ferment of liver or muscle is increased by addition of a boiled extract of pancreas.

2853. Bierry, H. Sur l'amylase du suc pancréatique de sécretine. (Société de biologie, Comptes rendus, Paris, 1907, tome 62, p. 433–435.) **QAA**

Amylase of the normal juice preserves its activity in the thermostat. Neutralized juice loses this action after 24 hours at 40° and the amylase in a neutral medium becomes inactive much more rapidly. — *Chem. abst.*

2854. Briot, A. Sur les mélanges de diastase et d'antidiastase. (Société de biologie, Comptes rendus, Paris, 1907, tome 62, p. 325–326.) **QAA**

2855. Fernbach, Auguste, and J. Wolff. Étude sur la liquéfaction diastasique des empois de fécule. (Académie des sciences, Comptes rendus, Paris, 1907, tome 145, p. 261–263.) ***EO**

The liquefaction is retarded by alkaline salts and unaffected by neutral salts. If the medium is exactly neutral to methyl orange the slightest addition of sodium hydroxide or sulphuric acid considerably retards the liquefaction.

Condensed in *Bull. assoc. chimistes*, 1907–08, tome 25, p. 299–300.

Abstract in *Jour. soc. chem. ind.*, 1907, v. 26, p. 938; *Chem. abst.*, 1907, v. 1, p. 2498; *Chem. Centr.*, 1907, Bd. 2, p. 997.

2856. Guyenot, E. Influence de la dialyse et des sels minéraux sur l'activité du ferment amylolytique de la salive. (Société de biologie, Comptes rendus, Paris, 1907, tome 63, p. 768–770.) **QAA**

Dialyzed saliva always exhibits less saccharogenic activity than normal saliva. The activity may be restored and even increased by addition of mineral salts. There is a difference in the effect of various salts; each salt has its individual optimum proportion.

Abstract in *Bull. soc. chim. France*, 1908, série 4, tome 3, p. 400.

2857. Preti, L. Über die Wirkung der Salze auf das Gärvermögen der verschiedenen diastatischen Fermente. (Biochemische Zeitschrift, Berlin, 1907, Bd. 4, p. 1–5.) **PPB**

The amylases of pancreatin, urine and blood serum are rendered inactive by dialysis; activity is restored by addition of NaCl. The activity of taka-diastase is not affected by dialysis.

ylases, continued.

vation and Inactivation by Salts, Acids,
etc., continued.

. **Baker**, Julian L., and H. F. E. Hul-
Action of the enzymes of malt on un-
ninated cereals. (British Association for
Advancement of Science, Report, Lon-
1908, p. 670–671.) ***EC**

etermine diastatic activity of separate
actions of malt and barley and of an
action of a mixture of the two. The
rity of the extract from the mixture was
ter than the mean of its constituents.

lso in *Analyst*, London, 1908, v. 33, p. 392–393,
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bstract in *Jour. soc. chem. ind.*, 1908, v. 27, p.

. **Bierry**, H. Sur l'action de l'amylase
uc pancréatique et son activation par le
gastrique. (Académie des sciences,
nptes rendus, Paris, 1908, tome 146, p.
419.) ***EO**

ostract in *Chem. Centr.*, 1908, Bd. 2, p. 1298.

. **Ford**, John S., and John M. Guthrie.
chemistry of barley. 1. Amylase of rest-
barley. (Institutes of Brewing, Journal,
don, 1908, v. 14, p. 61–85.) **VTRA**

ind the diastatic power of barley extract
onsiderably increased if the digestion is
ied out for some hours at 30–35°, or if
e is present during the extraction vari-
proteolytic enzymes, various salts or
no acids.

ondensed in *Bull. assoc. chimistes*, 1907–08, tome
. 995–999.

ostract in *Jour. soc. chem. ind.*, 1908, v. 27, p.
Jour. chem. soc., 1908, v. 94, part 2, p. 218;
. *abst.*, 1908, v. 2, p. 1593; *Chem. Zentr.*, 1908,
, p. 1470.

. **Gessard**, C., and J. Wolff. Sur ie
m antiamylasique. (Académie des sci-
s, Comptes rendus, Paris, 1908, tome
p. 414–416.) ***EO**

repare a serum from rabbits which in-
s the saccharogenic action of malt amy-

ostract in *Jour. chem. soc.*, 1908, v. 94, part 1,
9; *Chem. Centr.*, 1908, Bd. 1, p. 1289.

. **Gigon**, A., and T. Rosenberg. Über
Einwirkung des Mangans und Eisen-
ts auf diastatische Fermente. (Skan-
visches Archiv für Physiologie, Leipzig,
, Bd. 20, p. 423–431.)

vailable in Library of the Surgeon Gen-
s Office.

ote that $MnSO_4$ and $FeSO_4$ increase the
harogenic activity of blood serum and
reatic amylase.

ostract in *Chem. abst.*, 1908, v. 2, p. 3239;
. *Centr.*, 1908, Bd. 2, p. 84.

2863. Ling, Arthur R., and G. McLaren. Use of copper or brass beakers in the determination of "extracts" in malts. (Institute of Brewing, Journal, London, 1908, v. 14, p. 160–166.) **VTRA**

Small amounts of dissolved copper inhibit the action of diastase.

Abstract in *Jour. soc. chem. ind.*, 1908, v. 27, p. 514; *Chem. abst.*, 1909, v. 3, p. 1902; *Chem. Zentr.*, 1908, Bd. 2, p. 546.

2864. Roger, H. Sur le rôle des phosphates dans la saccharification salivaire. (Société de biologie, Comptes rendus, Paris, 1908, tome 65, p. 374–375.) **QAA**

Concludes that phosphates are necessary for the activity of salivary amylase.

Abstract in *Bull. soc. chim. France*, 1909, série 4, tome 5, p. 191.

2865. —— Action de l'acétate d'urane sur quelques ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1908, tome 65, p. 388–389.) **QAA**

Concludes that the effects noted in the above article were due not to a removal of the phosphate but to a modification of the medium.

Abstract in *Bull. soc. chim. France*, 1909, série 4, tome 5, p. 191.

2866. —— Recherches expérimentales sur la digestion des féculents. (Archives de médecine expérimentale, Paris, 1908, tome 20, p. 217–233.)

Available in Library of the New York Academy of Medicine.

Studies effect of the white and yolk of hen's eggs on activity of pancreatic amylase and of gastric juice.

Abstract in *Chem. abst.*, 1908, v. 2, p. 2593.

2867. Simon, D. Der Einfluss fremder Einwirkungen auf das diastatische Vermögen des Malzes. (Auszug.) (Zeitschrift für das gesamte Brauwesen, München and Berlin, 1908, Jahrg. 31, p. 277.)

Available in Library of the Chemists' Club.

2868. Slosse, A., and H. Limbosch. Note sur la dialyse des ferments digestifs in sacs de collodion. (Société royale des sciences médicales et naturelles, Bruxelles, Bulletin, 1908, année 66, p. 80–82.)

Available in Library of the New York Academy of Medicine.

Find amylases are rendered inactive by dialysis.

2869. Apsit, J., and Edmond Gain. Les graines tuées par anesthésie conservent leurs propriétés diastasiques. (Académie des

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

sciences, Comptes rendus, Paris, 1909, tome 149, p. 58–60.) ***EO**

Seeds retain amylolytic activity after the germinating power has been destroyed.

Abstract in *Chem. abst.*, 1909, v. 3, p. 2460; *Chem. Zentr.*, 1909, Bd. 2, p. 635.

2870. **Brunacci,** Bruno. Sulla questione dello ptialinogeno. (Bullettino delle scienze mediche, Bologna, 1909, anno 80, p. 243.)

Available in Library of the New York Academy of Medicine.

The saccharogenic activity of human saliva is completely destroyed by dialysis. Partial regeneration may be effected by returning those salts removed by dialysis or by adding NaCl.

Abstract in *Chem. abst.*, 1910, v. 4, p. 2324.

2871. —— L'azione degli elettroliti sul fermento salivare. (Bullettino delle scienze mediche, Bologna, 1909, anno 80, p. 244.)

Available in Library of the New York Academy of Medicine.

2872. **Hata,** S. Über die Sublimathemmung und Reaktivierung der Fermentwirkungen. (Biochemische Zeitschrift, Berlin, 1909, Bd. 17, p. 156–187.) **PPB**

Notes that the action of ptyalin is inhibited by mercuric chloride, the activity being restored upon addition of potassium sulphide or potassium cyanide.

Abstract in *Jour. soc. chem. ind.*, 1909, v. 28, p. 537; *Chem. abst.*, 1909, v. 3, p. 1773; *Jour. chem. soc.*, 1909, v. 96, part 1, p. 543; *Chem. Zentr.*, 1909, Bd. 1, p. 1895.

2873. **Peters,** Amos W., and Opal Burres. Studies on enzymes. 2. The diastatic enzyme of paramoecium in relation to the killing concentration of copper sulphate. (Journal of biological chemistry, Baltimore, 1909, v. 6, p. 65–73.) **PPB**

Abstract in *Chem. abst.*, 1909, v. 3, p. 2809.

2874. **Quinan,** Clarence. Critical hydroxyl ion concentration in diastatic hydrolysis. (Journal of biological chemistry, Baltimore, 1909, v. 6, p. 53–63.) **PPB**

Determines amount of alkali required to arrest the saccharogenic action of 3 different amylases.

2875. **Wohlgemuth,** J. Untersuchungen über die Diastasen. 6. Über den Einfluss der Galle auf die Diastase. (Biochemische Zeitschrift, Berlin, 1909, Bd. 21, p. 447–459.) **PPB**

The bile, besides its own amylolytic activity, possesses the ability to increase the activity of both plant and animal amylases The activating substance is not destroye by boiling, is dialyzable, and is soluble i alcohol.

2876. **Agullion,** Henri. Influence de l'acid borique sur les actions diastasiques. (Insti tut Pasteur, Annales, Paris, 1910, tome 24 p. 495–518.) **QD**

Notes that in low concentrations bori acid favors the action of pancreatic amylase while in saturated solutions there is a sligh inhibiting effect.

2877. **Buglia,** G. Einfluss der Gallensalz auf die Pankreasverdauung der Stärk (Biochemische Zeitschrift, Berlin, 1910, B 25, p. 239–256.) **PP**

The amyloclastic activity, as determine by viscosimetric measurements, and th saccharogenic activity are favorably infl enced by the presence of bile salts. Ther exists a certain optimum concentration o salts which varies with the conditions o digestion. Suggests that the activating influ ence may be due to a lowering of surfac tension of the starch solutions.

Abstract in *Chem. abst.*, 1910, v. 4, p. 2004; *Chem Zentr.*, 1910, Bd. 1, p. 2124.

2878. **Cantanni,** Eugenio. Über den be förnden Einfluss der Lipoide auf die Wir kung der Leberdiastase. (Biochemisch Zeitschrift, Berlin, 1910, Bd. 29, p. 389–394. **PP**

The alcohol extract of liver and the ethe extract of egg yolk, blood and intestine al accelerated the action of amylase.

2879. **Fernbach,** Auguste, and M. Schoe De l'influence que la réaction exerce su certaines propriétés des macérations d malt. (Académie des sciences, Compte rendus, Paris, 1910, tome 151, p. 894–897. ***E**

Determine influence of heat and acidit on saccharogenic activity of malt amylase

Abstract in *Chem. abst.*, 1911, v. 5, p. 511; *Chem Zentr.*, 1911, Bd. 1, p. 497.

2880. **Kendall,** E. C., and Henry C. Sher man. Studies on amylases. 2. A study c the action of pancreatic amylase. (America Chemical Society, Journal, Easton, 1910, 32, p. 1087–1105.) **PK**

Find that purified pancreatic amylas does not act upon Lintner's soluble starch Addition of electrolytes restores activit The activating effect of various salt mix tures is studied. The initial rate of hydroly sis, in the presence of optimum concentra tions of activating salts, is independent c the substrate concentration. Using 1% so

ylases, continued.

ivation and Inactivation by Salts, Acids,
etc., continued.

e starch under the most favorable con-
ons, an equilibrium point is reached
ch corresponds to about 85% maltose.
e temperature coefficient between 20°
40° corresponds approximately to van't
ff's rule.

bstract in *Jour. soc. chem. ind.*, 1910, v. 29, p.
; *Jour. chem. soc.*, 1910, v. 98, part 1, p. 799;
n. *Zentr.*, 1910, Bd. 2, p. 1411–1412; *Bull. soc.*
. *France*, série 4, tome 10, p. 992.

1. **Starkenstein,** Emil. Über Ferment-
kung und deren Beeinflussung durch
ıtralsalze. (Biochemische Zeitschrift,
lin, 1910, Bd. 24, p. 210–218.) **PPB**

iver amylase is inactivated by dialysis,
activity being partially restored upon
ition of NaCl. Adsorption by a suspen-
of insoluble starch completely removes
lase from a solution of soluble starch.
ıcludes that no chemical combination
es place between the enzyme and the
stratum.

bstract in *Jour. soc. chem. ind.*, 1910, v. 29, p.
Chem. abst., 1910, v. 4, p. 1500; *Jour. chem.*
1910, v. 98, part 1, p. 449; *Chem. Zentr.*, 1910,
1, p. 1734.

2. **Vandevelde,** A. J. J. Les infusions
nalt contiennent-elles de l'antiamylase?
ciété chimique de Belgique, Bulletin,
ıd, 1910, tome 24, p. 198–200.) **PKA**

revious heating at 55° causes a slight
ease in the diastatic activity of an in-
on of green malt. Suggests that an anti-
lase is destroyed at this temperature.

3. **Bang,** Ivar. Untersuchungen über
stasen. 1. (Biochemische Zeitschrift,
lin, 1911, Bd. 32, p. 417–442.) **PPB**

ialysis does not completely destroy sac-
ogenic activity of ptyalin amylase.
lies activating influence of chlorides and
sphates.

bstract in *Chem. abst.*, 1911, v. 5, p. 2861;
n. *Zentr.*, 1911, Bd. 2, p. 294; *Bull. assoc.*
istes, 1911–12, tome 29, p. 232–233.

. **Gerber,** C. Action des sels des mé-
du groupe aurique sur la saccharifica-
de l'empois d'amidon par les ferments
lolytiques. (Société de biologie,
ıptes rendus, Paris, 1911, tome 70, p.
-145.) **QAA**

admium, zinc, mercury and silver salts
investigated. A combination of the elec-
tes and substrate is indicated.

ostract in *Chem. abst.*, 1911, v. 5, p. 1624.

. —— Action des sels des métaux al-
ıs sur la saccharification de l'empois
ıidon par les ferments amylolytiques.
(Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 391–397.) **QAA**

Determines action of salts of mineral acids, of monobasic organic acids, and of polybasic organic acids.

Abstract in *Chem. abst.*, 1911, v. 5, p. 2116.

2886. —— Action des sels des métaux du groupe aurique sur la saccharification de l'empois d'amidon par les ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 547–553.) **QAA**

Zinc, copper, gold, platinum and palladium salts are investigated.

Abstract in *Chem. abst.*, 1911, v. 5, p. 2396.

2887. —— Action des composés du chrome sur la saccharification de l'empois d'amidon par les ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 724–726.) **QAA**

Abstract in *Chem. abst.*, 1911, v. 5, p. 2396.

2888. —— Action des sels de magnésium, de manganèse, de fer et d'aluminium sur la saccharification de l'empois d'amidon par les ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 726–728.) **QAA**

Abstract in *Chem. abst.*, 1911, v. 5, p. 2396.

2889. —— Action des aluns sur la saccharification de l'empois d'amidon par les ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 728–730.) **QAA**

Abstract in *Chem. abst.*, 1911, v. 5, p. 2396.

2890. —— Action des sels des métaux alcalins sur la saccharification de l'empois d'amidon par les ferments protéolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 822–828.) **QAA**

Investigates action of sodium, potassium, ammonium, rubidium, cesium and lithium salts.

Abstract in *Chem. abst.*, 1911, v. 5, p. 2660.

2891. —— Action des sels de métaux alcalins sur la saccharification de l'empois d'amidon par les ferments amylolytiques. 7. (Société de biologie, Comptes rendus, Paris, 1911, tome 71, p. 41–47.) **QAA**

The effect of ammonium salts, amides, nitriles, and salts of amines, on the saccharogenic activity of amylase is determined.

Abstract in *Chem. abst.*, 1911, v. 5, p. 3294.

2892. —— Action des alcaloïdes et de leurs sels sur la saccharification de l'empois d'amidon par les ferments amylolytiques.

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

(Société de biologie, Comptes rendus, Paris, 1911, tome 71, p. 208–214.) **QAA**

Determines influence of quinine, caffeine, codeine, morphine and of cocaine salts on saccharogenic activity of amylase.

Abstract in *Chem. abst.*, 1911, v. 5, p. 3472.

2893. —— Action de quelques sels sur la saccharification de l'amidon soluble de Fernbach-Wolff par les ferments amylolytiques. (Société de biologie, Comptes rendus, Paris, 1911, tome 71, p. 247–249.) **QAA**

Abstract in *Chem. abst.*, 1911, v. 5, p. 3472.

2894. Lapidus, Herman. Diastase und Handelslecithin. (Biochemische Zeitschrift, Berlin, 1911, Bd. 30, p. 39–55.) **PPB**

Studies influence of commercial lecithin on salivary and pancreatic amylases at various temperatures.

Abstract in *Chem. abst.*, 1911, v. 5, p. 3079; *Chem. Zentr.*, 1911, Bd. 1, p. 670; *Bull. assoc. chimistes*, 1911–12, tome 29, p. 98; *Bull. soc. chim. France*, 1912, série 4, tome 12, p. 119.

2895. Lisbonne, Marcel. Sur une condition de milieu nécessaire à l'action de l'amylase salivaire. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 62–63.) **QAA**

Dialyzed saliva no longer has the power of saccharifying demineralized starch. Phosphates, arsenates, carbonates, the bases and salts of certain organic acids such as citrates, acetates, formates, and oxalates restore activity.

Condensed in *Bull. assoc. chimistes*, 1910–11, tome 28, p. 805–806; *Bull. soc. chim. France*, 1911, série 4, tome 9, p. 752.

2896. —— Sur le rôle des électrolytes dans la saccharification de l'amidon par les amylases salivaire et pancréatique. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 132–134.) **QAA**

Dialyzed pancreatic juice is inactive with the purified starch of Fernbach and Wolff. It is inactive in presence of such salts as chlorides or bromides. Even with phosphates, oxalates, and citrates it is inactive, although these have such an activating influence with saliva and starch. But in mixtures of these two sorts of electrolytes activity is found. — *Chem. abst.*

Abstract in *Bull. soc. chim. France*, 1911, série 4, tome 9, p. 791.

2897. —— Influence des chlorures et des phosphates sur la saccharification de l'amidon déminéralisé par les amylases salivaire et pancréatique. (Société de biologie, Comptes rendus, Paris, 1911, tome 70, p. 207–209.) **QAA**

The saccharogenic activity of pancreatic juice is destroyed by dialyzing. Addition of chlorides partially restores activity, although addition of phosphates does not.

Abstract in *Chem. abst.*, 1911, v. 5, p. 1625; *Bull. soc. chim. France*, 1911, série 4, tome 9, p. 978.

2898. Starkenstein, Emil. Über die Unabhängigkeit der Diastasewirkung von den Lipoiden. (Biochemische Zeitschrift, Berlin, 1911, Bd. 33, p. 422–435.) **PPB**

Finds amyloclastic activity is not decreased by presence of certain lipoids.

Abstract in *Chem. Zentr.*, 1911, Bd. 2, p. 703; *Bull. assoc. chimistes*, 1911–12, tome 29, p. 632.

2899. Terroine, Emile F. Lecithin und diastatische Wirkungen. (Biochemische Zeitschrift, Berlin, 1911, Bd. 35, p. 506.) **PPB**

Referring to recent investigations regarding influence of lipoids on amylolytic activity, attention is called to the previous work of the author.

2900. Wohlgemuth, J. Untersuchungen über die Diastasen. 9. Über den Einfluss des Serums, der Lymphe und der Organpresssäfte auf die Wirkung der Diastase. (Biochemische Zeitschrift, Berlin, 1911, Bd. 33, p. 303–314.) **PPB**

Notes an activating influence. The activator is not destroyed by boiling and is soluble in alcohol.

Abstract in *Bull. soc. chim. France*, 1912, série 4, tome 12, p. 507.

2901. Zimmerman, A. The accelerating action of hydrochloric acid upon the starch-converting properties of pancreatin and malt. (Journal of industrial and engineering chemistry, Easton, 1911, v. 3, p. 823–826.) **† VOA**

Tabulates results showing conditions which affect conversion to the achromic point.

2902. Ando, F. On the saccharification of starch by koji diastase in presence of acids and salts. (International Congress of Applied Chemistry, 8th, Washington and New York, 1912, Original communications, v. 14, p. 13–24.) **PKR**

Investigates effect on saccharification produced by 29 different salts and acids at concentrations ranging from 0.1% to 1.0%.

Abstract in *Chem. abst.*, 1913, v. 6, p. 3097; *Jour. soc. chem. ind.*, 1912, v. 31, p. 946.

2903. Bierry, H. Die Rolle der Elektrolyte bei der Wirkung einiger tierischer Fer-

lases, continued.

ration and Inactivation by Salts, Acids, tc., continued.

e. (Biochemische Zeitschrift, Berlin, Bd. 40, p. 357–369.) **PPB**

ter dialyzing preparations of the en- s, concludes that Cl or Br ions are ssary for the activity of animal amy- whereas plant amylases retain their ity in the absence of these electrolytes.

Burge, W. E. The rate of the de- tion of ptyalin by the passage of the t electric current. (American journal of ology, Boston, 1912–13, v. 31, p. 328– **QCA**

ds the direct electric current destroys accharogenic activity of ptyalin and that estruction is not due to the electrolysis cts.

Gemmell, G. H. Influence of mineral tituents of water in brewing. (Insti- of Brewing, Journal, London, 1912, v. 34–45.) **VTRA**

reviewing the subject discusses influ- of salts on saccharification during ing.

tract in *Jour. soc. chem. ind.*, 1912, v. 31, p.

.

Gerber, C. Action de doses faibles oxygénée sur la saccharification de ois d'amidon et de la solution d'amidon le Fernbach-Wolff par quelques fer- s amylolytiques végétaux et animaux. été de biologie, Comptes rendus, Paris, tome 72, p. 946–948.) **QAA**

general, H_2O_2 inhibits the action of ases.

tract in *Chem. abst.*, 1913, v. 7, p. 2582.

—— Influence de l'iode sur la sac- ication de l'amidon par quelques amy- végétales et animales. (Société de bi- e, Comptes rendus, Paris, 1912, tome 1116–1118.) **QAA**

tract in *Chem. abst.*, 1914, v. 8, p. 139.

—— Chlore et saccharification de lon. (Société de biologie, Comptes s, 1912, tome 73, p. 356–360.) **QAA**

e halogens in small amounts increase ctivity of plant amylases.

tract in *Chem. abst.*, 1914, v. 8, p. 351.

Glickman, L. H., and CHAS. E. VAN- EED. The effect of paraformaldehyde, l and creosote on the digestive action osin, pancreatin and diastase. (Ameri- Pharmaceutical Association, Journal, nbus, 1912, v. 2, p. 958–961.) **WTA**

tract in *Chem. abst.*, 1913, v. 7, p. 3520.

2910. **Heusch,** Eugenio. Influenza dell' acido salicilico sull'azione amilolitica dell' estrato acquoso del malto. (Archivio di farmacologia sperimentale e scienze affini, Siena, 1912, v. 13, p. 307–323.)

Available in Library of the Surgeon General's Office.

Investigates influence of salicylic acid, potassium salicylate, and benzoic acid on the saccharogenic activity of malt amylase. The transformation is accelerated by small quantities of acid and retarded by greater amounts.

Abstract in *Chem. abst.*, 1912, v. 6, p. 2242; *Chem. Zentr.*, 1912, Bd. 2, p. 495.

2911. **Lisbonne,** Marcel, and E. VULQUIN. Inactivation de l'amylase du malt par la dialyse électrique, activation par les électrolytes. (Société de biologie, Comptes rendus, Paris, 1912, tome 72, p. 936–938.) **QAA**

Amylase migrates to the negative pole. Electrodialysis removes electrolytes and causes a simultaneous disappearance of activity. Addition of electrolytes restores activity.

Abstract in *Chem. abst.*, 1914, v. 8, p. 138; *Bull. assoc. chimistes*, 1912–13, tome 30, p. 130; *Bull. soc. chim. France*, 1912, série 4, tome 11, p. 1023.

2912. **Minami,** D. Über den Einfluss der Galle auf die Diastase (Amylase). (Biochemische Zeitschrift, Berlin, 1912, Bd. 39, p. 339–354.) **PPB**

Investigates action of ether and water extracts of bile, lecithin, cholesterol, and the sodium salts of taurocholic, glycoholic and choleinic acids.

2913. —— Über den Einfluss des Lecithins und der Lipoide auf die Diastase (Amylase). (Biochemische Zeitschrift, Berlin, 1912, Bd. 39, p. 355–380.) **PPB**

Lipoids are unnecessary for the action of amylase. Extraction of amylase preparations with ether did not decrease their activity. — *Chem. abst.*

2914. **Moufang,** Ed. Über die Wirkung verschiedener Säuren beim Maischen. (Zeitschrift für das gesammte Brauwesen, München, 1912, Jahrg. 35, p. 591–593.) **† VTRA**

Parallel malt mashes with lactic and phosphoric acids show the former exerts a more favorable influence on saccharification.

Abstract in *Jour. soc. chem. ind.*, 1913, v. 32, p. 102; *Chem. abst.*, 1912, v. 7, p. 859.

2915. **Rinaldini,** Theofilo. Critica sperimentale alla dottrina degli addattamenti degli enzimi digerenti. 3. Sull' amilasi del secreto pancreatico raccolto dopo differenti

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

alimentazioni. (Archivio di farmacologia sperimentale e scienze affini, Siena, 1912, v. 13, p. 241–252.)

Available in Library of the New York Academy of Medicine.

Notes that addition of gall considerably increases the activity of pancreatic amylase.

2916. **Ringer**, W. E., and H. van Trigt. Einfluss der Reaktion auf die Ptyalinwirkung. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Strassburg, 1912, Bd. 82, p. 484–501.) **PKA**

Using phosphate and acetate buffers at 37° find optimum saccharogenic activity at pH 6.0. With citrate buffers the optimum varies with the concentration of the salt.

Abstract in *Jour. chem. soc.*, 1913, v. 104, part 1, p. 211.

2917. **Starkenstein**, Emil. Über Fermentwirkung und deren Beeinflussung durch Neutralsalze. 2. (Biochemische Zeitschrift, Berlin, 1912, Bd. 47, p. 300–319.) **PPB**

The number of salt molecules necessary to activate to the maximum extent an inactive amylase preparation is proportional to the amount of enzyme. Using this as a method of determination, finds the organs of warm-blooded animals contain more enzyme than those of the cold-blooded.

Abstract in *Chem. Zentr.*, 1913, Bd. 1, p. 445; *Jour. chem. soc.*, 1913, v. 104, part 1, p. 128; *Jour. soc. chem. ind.*, 1913, v. 32, p. 41.

2918. **Terroine**, Émile F., and Jeanne Weill. Action des acides aminés sur la saccharification de l'amidon par le suc pancréatique. (Société de biologie, Comptes rendus, Paris, 1912, tome 72, p. 542.) **QAA**

Find that saccharification is accelerated by α-alanine, valine, leucine, phenylalanine, tyrosine, arginine, histidine and aspartic and glutaminic acids.

Abstract in *Chem. abst.*, 1913, v. 7, p. 1535.

2919. **Laer**, Henri van. La diastase saccharifiante du malt et la réaction du milieu. (International Congress of Applied Chemistry, 8th, Washington and New York, 1912, Original communications, v. 14, p. 203–213.) **PKR**

Investigates velocity of saccharification in presence of sodium and potassium phosphates, ammonium, triethylamine, sodium hydroxide, and various organic and inorganic acids. Concludes that a lowered diastatic activity results from an inactive combination formed by the enzyme and the acid or the alkali.

Abstract in *Chem. abst.*, 1912, v. 6, p. 3156.

2920. **Bergeim**, Olaf, and P. B. Hawk. Inhibition of enzyme action by lime-softened waters. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 1049–1056.) **PKA**

Investigating effect of various constituents find that of magnesium hydroxide is most pronounced, a saturated solution reducing activity by 99%. The tests also indicate that salivary and pancreatic amylases are not identical.

Abstract in *Chem. Zentr.*, 1913, Jahrg. 84, Bd. 2, p. 1314; *Jour. chem. soc.*, 1913, v. 104, part 1, p. 1119; *Jour. soc. chem. ind.*, 1913, v. 32, p. 879.

2921. **Hawkins**, Lon A. The effect of certain chlorides singly and combined in pairs on the activity of malt diastase. (Botanical gazette, Chicago, 1913, v. 55, p. 265–285.) **QEA**

Abstract in *Chem. abst.*, 1913, v. 7, p. 2957.

2922. **Heusch**, Eugenio. Influenza dei fenoli sull' azione amilolitica dell' estratto acquoso di malto. (Archivio di farmacologia sperimentale e scienze affini, Siena, 1913, v. 16, p. 308–316.)

Available in Library of the Surgeon General's Office.

Phenol, resorcinol and phloroglucinol influence the amylolytic activity of malt somewhat differently, but the differences are by no means regular, varying with the concentration. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1914, Bd. 1, p. 155.

2923. **Lagane**, L. Action de l'eau oxygénée sur l'amylase du lait de femme. (Académie des sciences, Comptes rendus, Paris, 1913, tome 156, p. 1941–1943.) ***EC**

Using the amylases of milk, finds H_2O considerably accelerates the amyloclastic activity and to a lesser degree the saccharogenic activity.

2924. **Long**, J. H., and W. A. Johnson. On some conditions affecting the activity and stability of certain ferments. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 895–913.) **PKA**

Determine effect of weak acids and alkalies on a number of commercial amylase preparations. Activity is measured by time required for digestion to the achromic point in the presence of activating salts.

Abstract in *Chem. Zentr.*, 1913, Bd. 2, p. 976; *Bull. soc. chim. France*, 1913, série 4, tome 14, p. 1306.

2925. **Swanson**, C. O., and John W. Calvin. A preliminary study on the conditions which affect the activity of the amylolytic enzymes in wheat flour. (American Chemical Society, Journal, Easton, 1913, v. 35, p. 1635–1643.) **PKA**

Investigate optimum temperatures and optimum proportions of flour and water

lases, continued.

vation and Inactivation by Salts, Acids,
tc., continued.

effect on the production of reducing
rs was determined for sulfuric acid,
H, K_2HPO_4, and NaCl, all at differing
entrations.

stract in *Jour. chem. soc.*, 1913, v. 104, part 1,
30; *Jour. soc. chem. ind.*, 1913, v. 32, p. 987;
Zentr., 1913, Bd. 2, p. 1884; *Bull. soc. chim.*
e, 1914, série 4, tome 16, p. 56.

Windisch, W., and Derz. Über den
uss der Reaktion auf die Stärkever-
erung mit besonderer Berücksichtigung
Phosphate. (Wochenschrift für Brau-
Berlin, 1913, Jahrg. 30, p. 533–537.)

ailable in Library of the Brewers'
emy.

ıdy influence of NaOH, H_2SO_4 and
ssium phosphates on activity of malt
ase.

stract in *Chem. abst.*, 1914, v. 8, p. 268; *Chem.*
, 1913, Bd. 2, p. 2011; *Bull. assoc. chimistes,*
14, tome 31, p. 468.

Crohn, B. B., and A. A. Epstein.
stimulating influence of serum on pan-
ic amylase. (Journal of biological
istry, Baltimore, 1914, v. 17, p. 317–
PPB

lieve the activating effect of serum is
chiefly to presence of inorganic salts.

Graber, Howard T. Laboratory stud-
n malt extract. (Journal of industrial
engineering chemistry, Easton, 1914,
p. 403–404.) **VOA**

ncludes that the decrease in activity of
ase is due to formation of lactic acid.

stract in *Chem. Zentr.*, 1914, Bd. 2, p. 149.

Long, J. H., and G. W. Muhleman.
mutual action of certain digestive fer-
s. (Archives of internal medicine, Chi-
1914, v. 13, p. 314–348.)

ailable in Library of the New York
emy of Medicine.

e activity of pancreatic amylase was
oyed by HCl although pepsin had no
t. A number of commercial prepara-
were found to have almost completely
ctivity after standing for a year.

Mellanby, J., and V. J. Woolley. The
hydrate ferments of pancreatic juice.
rnal of physiology, Cambridge, 1914–
49, p. 246–264.) **QCA**

e hydrolysis of starch by pancreatic
is facilitated by neutral salts. In the
nce of HCl the products are dextrose,
se and dextrin, the relative quantities
being a function of the pH. The pure juice has no action on maltose, sucrose or lactose.

Abstract in *Chem. abst.*, 1915, v. 9, p. 2769; *Jour. soc. chem. ind.*, 1916, v. 35, p. 135; *Chem. Zentr.*, 1915, Bd. 2, p. 476.

2931. **Michaelis,** Leonor, and H. Peckstein. Die Wirkungsbedingungen der Speicheldiastase. (Biochemische Zeitschrift, Berlin, 1914, Bd. 59, p. 77–99.) **PPB**

By using various buffer mixtures at 38°, find maximum amyloclastic activity at about pH 6.0, activity being measured by a modification of Wohlgemuth's method. Determine activating influence of salts at various H ion concentrations and determine optimum pH in the presence of various salts. Find that the isoelectric point in buffer solutions is between pH 5 and pH 6.

Abstract in *Chem. abst.*, 1914, v. 8, p. 1795; *Jour. chem. soc.*, 1914, v. 106, part 1, p. 340; *Chem. Zentr.*, 1914, Bd. 1, p. 798.

2932. **Viswanath,** B., and others. Some factors affecting the cooking of dholl (Cajanus indicus). By B. Viswanath, T. L. Row and P. A. R. Ayyangar. (India.—Department of Agriculture, Memoirs, Chemical series, Calcutta, 1914–16, v. 4, p. 149–163.) **VPH**

Determine relative influence of various electrolytes at N/10 concentration on rate of liquefaction of rice starch at 70°. The amount liquefied was determined by treating the resulting mixture for 2 hours with malt extract at 30°, filtering with kaolin, hydrolyzing a portion of the filtrate with HCl and determining the dextrose formed.

Abstract in *Chem. abst.*, 1916, v. 10, p. 2996; *Jour. soc. chem. ind.*, 1916, v. 35, p. 858.

2933. **Hatta,** Zennoshin. Über die diastatische Wirkung des menschlichen Speichels. (Mitteilungen aus der Medizinischen Fakultät der Kaiserlichen Universität zu Tokyo, 1915, Bd. 14, p. 511–551.)

Available in Library of the New York Academy of Medicine.

Notes that tannic acid inhibits the activity of ptyalin amylase, whereas Na nucleinate and the tincture and extract of valerian promoted amylolytic activity. A layer of toluene more effectively preserved activity than layers of formaldehyde or phenol.

Abstract in *Chem. abst.*, 1916, v. 10, p. 1679.

2934. **Sherman,** Henry C., and Arthur W. Thomas. Studies on amylases. 8. The influence of certain acids and salts upon the activity of malt amylase. (American Chemical Society, Journal, Easton, 1915, v. 37, p. 623–643.) **PKA**

Starch solution is treated with the enzyme preparation for 30 minutes at 40° in

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

presence of varying amounts of the electrolyte, Fehling's solution added, the weight of precipitated CuO determined, and saccharogenic activity calculated from scale of Sherman, Kendall and Clark. Twenty acids and salts all show activating influence, optimum acid concentration corresponding to pH 4.2–4.6. Amyloclastic activity, based on amount of enzyme required to destroy blue I reaction, reaches a maximum at a considerably lower concentration of activating agent.

Abstract in *Jour. chem. soc.*, 1915, v. 108, part 1, p. 183; *Chem. Zentr.*, 1915, Bd. 2, p. 30; *Bull. soc. chim. France*, 1915, série 4, tome 18, p. 492.

2935. **Adler,** L. Über den Einfluss der Wasserstoffionen auf die Wirksamkeit der Malzdiastase. (Biochemische Zeitschrift, Berlin, 1916, Bd. 77, p. 146–167.) **PPB**

The optimum pH for the amyloclastic and saccharogenic activity of malt amylase lies between pH 4.6 and pH 5.2.

Abstract in *Chem. abst.*, 1917, v. 11, p. 611; *Chem. Zentr.*, 1917, Bd. 1, p. 93; *Bull. soc. chim. France*, 1919, série 4, tome 26, p. 77.

2936. **Bokorny,** Th. Emulsin und Myrosin in der Münchener Brauereipresshefe (zum Teil auch in Getreidepresshefe). (Biochemische Zeitschrift, Berlin, 1916, Bd. 75, p. 376–416.) **PPB**

Notes that ptyalin amylase is acted upon injuriously by acids and alkalis and certain salts.

2937. **Effront,** Jean. Influence des sels sur l'amylolyse du pain. (Moniteur scientifique du docteur Quesneville, Paris, 1916, série 5, tome 6, p. 5–12.) **OA**

The conversion of starch in the salivary digestion of bread is favorably influenced by the phosphates present, due to their neutralization of HCl.

Abstract in *Jour. soc. chem. ind.*, 1916, v. 35, p. 323; *Chem. Zentr.*, 1916, Bd. 2, p. 69.

2938. **Baumgarten,** Arnold, and Alfred Luger. Über die Wirkung verdünnter Metallsalzlösung auf Diastase. (Wiener klinische Wochenschrift, Wien, 1917, Jahrg. 30, p. 1224–1226.)

Available in Library of the New York Academy of Medicine.

The inhibitory action of minute amounts of Cu on the action of enzymes (trypsin, diastase) is demonstrated. This marked inhibition is suggested as a test for minute amounts of metals. The inhibition is less marked with Ag than with Cu. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1917, Bd. 2, p. 752.

2939. **Berczeller,** L., and E. Fodor. Übe die Wirkung von oxydierenden und reduzierenden Substanzen auf die Diastase (Biochemische Zeitschrift, Berlin, 1917, B 84, p. 42–49.) **PP**

Using the I reaction as a criterion activity, find that iodine, hydrogen peroxide and potassium permanganate inhibit th action of amylase. Sodium thiosulphate ha practically no action. The accelerating action observed in the case of ordinary fo maldehyde is shown to be due to the presence of formic acid.

Abstract in *Jour. chem. soc.*, 1918, v. 114, part p. 132.

2940. **Berczeller,** L. Über die Oberflächenspannung von Fermentlösungen. (Biochemische Zeitschrift, Berlin, 1917, Bd. 8 p. 50–58.) **PP**

Notes that inactivation of commerci amylase preparations results in a lowerin of surface tension; results, however, wer not uniform.

2941. **Chrzaszcz,** Tadeusz, and A. Josch Über die Verschiebung einzelner amylolytischer Kräfte der Malzamylase und dere Verhalten beim Aufbewahren in Gegenwa verschiedener Reagenzien. (Biochemisch Zeitschrift, Berlin, 1917, Bd. 80, p. 211–241. **PP**

Extract ground barley malt with aqueou solutions of various substances; determin liquefying, saccharogenic and amyloclasti powers of the extracts. Results show ther is no relation between these properties an that pyridine and quinoline solutions ar most suitable extracting media. Bases ac favorably on the liquefying and saccharogenic powers, while alcohols inhibit all functions.

Abstract in *Chem. abst.*, 1917, v. 11, p. 2682 *Jour. soc. chem. ind.*, 1917, v. 36, p. 901; *Chem Zentr.*, 1917, Bd. 1, p. 1009; *Bull. soc. chim. Franc* 1918, série 4, tome 23, p. 295.

2942. **Euler,** Hans von, and Olof Svanberg. Über die Hemmung enzymatische Reaktionen durch Harn. (Zeitschrift fü physiologische Chemie, Hoppe-Seyler's Strassburg, 1917, Bd. 98, p. 202–225.) **PK**

A thorough investigation of the substanc in urine which inhibits amylolytic activity

Abstract in *Chem. abst.*, 1918, v. 12, p. 159; *Chem Zentr.*, 1917, Bd. 1, p. 884.

2943. **Kende,** Siegmund. Die Wirkung de Seifen auf den fermentativen Abbau de Stärke und des Glykogens. (Biochemisch Zeitschrift, Berlin, 1917, Bd. 82, p. 9–30. **PP**

The enzymic hydrolysis of starch an glycogen is inhibited by the presence o

ylases, continued.

ivation and Inactivation by Salts, Acids, etc., continued.

ps, whereas hydrolysis of dextrins is not
ected. The inhibiting action is appar-
ly due to the formation of an adsorption
npound with the substrate.

Abstract in *Chem. abst.*, 1918, v. 12, p. 44; *Chem.*
tr., 1917, Bd. 2, p. 156.

4. Rockwood, Elbert W. Some nitrog-
us auxoamylases. (American Chemical
ciety, Journal, Easton, 1917, v. 39, p.
5–2752.) **PKA**

Proteins, alpha amino acids and the hy-
chlorides of alkyl amines increase the
charogenic activity of ptyalin amylase
l are termed auxoamylases. No increase
activity is produced by amides, imides
l amino sulphonic acids.

Abstract in *Journal of biological chemistry*, 1917,
29, p. xxxiv; *Chem. Zentr.*, 1918, Bd. 2, p. 199;
l. soc. chim. France, 1918, série 4, tome 24, p.

5. Sherman, Henry C., and Jennie A.
alker. Influence of certain electrolytes
on the course of the hydrolysis of starch
malt amylase. (American Chemical So-
ty, Journal, Easton, 1917, v. 39, p. 1476–
3.) **PKA**

Study the hydrolysis of soluble starch by
hly purified malt amylase in neutral so-
ons and in presence of hydrochloric acid,
osphoric acid and mono-potassium phos-
ate. Determine influence of concentra-
n of enzyme, of electrolyte and of sub-
ate. The same optimum H ion concen-
tion was found to hold for each of the acid
ctrolytes and throughout the course of the
lrolysis.

Abstract in *Chem. abst.*, 1917, v. 11, p. 2335;
m. Zentr., 1918, Bd. 1, p. 12; *Bull. soc. chim.*
nce, 1917, série 4, tome 22, p. 718; *Jour. soc.*
n. ind., 1917, v. 36, p. 974.

6. Thomas, Arthur W. A noteworthy
ect of bromides upon the action of malt
ylase. (American Chemical Society,
rnal, Easton, 1917, v. 39, p. 1501–1503.)
PKA

Bromides differ from the other salts
ted in that they show an inhibiting action
en present in small amounts and an acti-
ing action when the concentration is fur-
r increased.

Abstract in *Chem. Zentr.*, 1918, Bd. 1, p. 29;
. soc. chim. France, 1917, série 4, tome 22,
19.

7. Ujihara, K. Amino acid stimulation
amylolytic action. (Abstract.) (Chemical
tracts, Easton, 1918, v. 12, p. 1971.) **PKA**

Votes that various amino acids increase
amyloclastic activity of amylases.

2948. Falk, K. George, and others. Studies on enzyme action. 17. The oxidase, peroxidase, catalase, and amylase of fresh and dehydrated vegetables. By K. G. Falk, Grace McGuire, and E. Blount. (Journal of biological chemistry, Baltimore, 1919, v. 38, p. 229–244.) **PPB**

Note that the optimum pH for the vegetable juice amylases coincides with the natural pH for these juices, about 6. Dehydration results in decreased activity.

Abstract in *Chem. abst.*, 1919, v. 13, p. 1716; *Chem. Zentr.*, 1920, Bd. 3, p. 598.

2949. Fenger, Frederic, and Mary Hull. Relationship of the pancreatic enzymes. (Journal of biological chemistry, Baltimore, 1919, v. 38, p. 487–500.) **PPB**

Amylolytic activity is determined by method of Johnson. NaCl is shown to exert a stabilizing rather than an activating effect upon amylase.

2950. McGuire, Grace, and K. George Falk. Studies on enzyme action. 18. The saccharogenic actions of potato juice. (Journal of general physiology, New York, 1919–20, v. 2, p. 215–227.)

Available in Library of the New York Academy of Medicine.

Note that the optimum activity of the amylase occurs at pH 6 to 7.

Abstract in *Chem. abst.*, 1920, v. 14, p. 749.

2951. Rockwood, Elbert W. The effect of neutral salts upon the activity of ptyalin. (American Chemical Society, Journal, Easton, 1919, v. 41, p. 228–230.) **PKA**

Finds the increase of saccharogenic activity is a function of the anion.

Abstract in *Chem. abst.*, 1919, v. 13, p. 1867; *Chem. Zentr.*, 1919, Bd. 3, p. 800; *Bull. soc. chim. France*, 1919, série 4, tome 26, p. 259.

2952. Sherman, Henry C., and others. Influence of hydrogen-ion concentration upon enzymic activity of three typical amylases. By H. C. Sherman, Arthur W. Thomas and M. E. Baldwin. (American Chemical Society, Journal, Easton, 1919, v. 41, p. 231–235.) **PKA**

Using the Clark cell and rocking electrode, have determined the lower and upper limiting values and the optimal pH value for pancreatic amylase, malt amylase and the amylase of Aspergillus oryzae.

Abstract in *Chem. abst.*, 1919, v. 13, p. 1867; *Chem. Zentr.*, 1919, Bd. 3, p. 1071; *Chimie et industrie*, 1919, v. 2, p. 924; *Bull. soc. chim. France*, 1919, série 4, tome 26, p. 259.

2953. Sherman, Henry C., and Florence Walker. Influence of aspartic acid and asparagine upon the enzymic hydrolysis of

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

starch. (American Chemical Society, Journal, Easton, 1919, v. 41, p. 1866–1873.) **PKA**

Find the action of animal amylases on starches is accelerated by addition of a boiled, neutralized aqueous extract of potato, while vegetable amylases are not influenced thus, probably due to absence of protease in the latter. The addition of neutralized aspartic acid or asparagine accelerates the action of both amylases. Show that the activation was not due to change in pH of the solution nor to a more favorable concentration of electrolyte.

Abstract in *Chem. abst.,* 1920, v. 14, p. 188; *Chem. Zentr.,* 1920, Bd. 1, p. 657; *Bull. soc. chim. France,* 1920, série 4, tome 28, p. 330.

2954. **Sherman,** Henry C. Chemical investigation of amylases and related enzymes. (Carnegie Institute, Washington, Yearbook, 1919, no. 18, p. 328–330.) ***EA**

Has determined action of Na aspartate and asparagine, both singly and together, on various amylases. Results indicate that their activating effects are interchangeable rather than additive. Optimum H ion concentrations and optimum concentrations of activating salts were used throughout.

Abstract in *Chem. abst.,* 1921, v. 15, p. 2888.

2955. **Stocks,** Percy. Experiments on the action of unsaturated fatty acids and lipoids on amylolytic and hemolytic phenomena. (Journal of pathology and bacteriology, Cambridge, 1919–20, v. 23, p. 1–14.)

Available in Library of the New York Academy of Medicine.

Notes that certain oleates inhibit the hydrolysis of starch by amylase.

Abstract in *Chem. abst.,* 1920, v. 14, p. 1147.

2956. **Temminck Groll,** J. De invloed van gal en galzouten op de belangrijkste spiksverterings fermenten. (Nederlandsch tijdschrift voor geneeskunde, Haarlem, 1920, jaarg. 64, 1B, p. 1157–1168.)

Available in Library of the New York Academy of Medicine.

Notes that pancreatic and ptyalin amylases are activated by bile; phosphate buffer mixtures are used to regulate the pH.

Also in *Archives néerlandaises de physiologie de l'homme et des animaux,* La Haye, 1920, tome 4, p. 382–410.

Abstract in *Chem. abst.,* 1921, v. 15, p. 2645; *Chem. Zentr.,* 1920, Bd. 3, p. 935.

2957. **Biedermann,** W. Das Koferment (Komplement) der Diastasen. (Fermentforschung, Leipzig, 1921, Bd. 4, p. 258–300.) **PPH**

Has investigated the activating action of a large number of salts and salt mixtures in which he varies the concentration of the salts and the acidity of the solution. Believes that both animal and vegetable diastases are composed of a thormolabile, organic component, termed a zymogen or proenzyme, and of a thermostabile complement termed a coenzyme or activator, the ions of numerous salts functioning as the latter.

Abstract in *Chem. abst.,* 1921, v. 15, p. 2885; *Jour. chem. soc.,* 1921, v. 120, part 1, p. 468; *Chem. Zentr.,* 1921, Bd. 3, p. 357.

2958. **Desgréz,** A., and R. Moog. Influence de quelques bases organiques et de leur chlorhydrate sur l'activité de l'amylase pancréatique. (Académie des sciences, Comptes rendus, Paris, 1921, tome 172, p. 551–553.) ***EO**

The amine hydrochlorides exert a favorable influence, whereas the free bases inhibit the action.

Abstract in *Chem. abst.,* 1921, v. 15, p. 1910; *Chem. Zentr.,* 1921, Bd. 1, p. 1004.

2959. **Hahn,** Amandus, and Rudolf Michalik. Über den Einfluss neutraler Alkalisalze auf diastatische Fermente. 3. (Zeitschrift für Biologie, München und Berlin, 1921, Bd. 73, p. 10–18.)

Available in Library of the New York Academy of Medicine.

Determine activity of pancreatic amylase in the presence of various salts, acetate and phosphate buffers being used for the production of different H ion concentrations. The optimum pH varies according to the nature of the buffer and the activating salt.

Abstract in *Chem. abst.,* 1921, v. 15, p. 2447; *Chem. Zentr.,* 1921, Bd. 1, p. 1006.

2960. **Ionescu,** Al. Contribution à l'étude de séparation des ptomaïnes des alcaloïdes végétaus dans les recherches toxicologiques. (Societătei de chimie din România, Buletinul, București, 1921, anul 2, p. 82–89.)

Available in Library of the Chemists' Club.

Notes that ptomaines and alkaloids do not affect the action of amylases.

Abstract in *Chem. abst.,* 1921, v. 15, p. 1116.

2961. **Isawa,** Tamekichi. Action of sodium oleate on amylolytic fermentation. (Abstract.) (Chemical abstracts, Easton, 1921, v. 15, p. 1542.) **PKA**

The activity of various amylases was distinctly inhibited by sodium oleate although not affected by ovolecithin. The inhibiting action was shown to be due to a combination of the oleate with the substrate.

2962. **Kehoe,** Robert A. The activation of an enzyme poisoned by heavy metal salts.

ylases, continued.

*ivation and Inactivation by Salts, Acids,
etc., continued.*

urnal of laboratory and clinical medi-
, St. Louis, 1921–22, v. 7, p. 736–742.)

vailable in Library of the New York
demy of Medicine.

sing ptyalin amylase, determines reacti-
ng power of a number of salts. In some
s 80% of the amylolytic activity was re-
ed. Believes the enzyme is of protein
ire, its activity depending on its combi-
on with certain salts or metals.

bstract in *Chem. abst.*, 1923, v. 17, p. 2121;
n. Zentr., 1923, Bd. 3, p. 164.

. **Lang,** S., and H. Lang. Über den
fluss von Fluornatrium auf die Wirkung
Pankreasdiastase. (Biochemische Zeit-
ift, Berlin, 1921, Bd. 114, p. 165–193.)
PPB

ote an inhibition above a certain con-
ration.

bstract in *Chem. abst.*, 1921, v. 15, p. 1909, 2886;
n. Zentr., 1921, Bd. 1, p. 915; *Bull. soc. chim.
ce,* 1921, série 4, tome 30, p. 960.

. **Luger,** A. Über die Wirkung metal-
ien Kupfers und Silbers auf Diastase.
Beitrag zur Kenntnis der sogenannten
odynamischen Phänomene. (Bioche-
che Zeitschrift, Berlin, 1921, Bd. 117, p.
-160.) **PPB**

xperiments are reported in which the
on of taka-diastase 1:1000 on soluble
ch in the presence of metallic Cu or Ag
e and in the presence of KCN, $Na_2S_2O_3$,
and NaCl was studied. The effect of
Cl_2 under like conditions was observed.
en the diastatic action has been retarded
he metals it can be reactivated by the
tion of these compounds. This leads
er to the conclusion that the so-called
odynamic action of metals is due only
heir solution in the various media used.
hem. abst.

. **Olsson,** Urban. Über Vergiftung der
ylase durch Schwermetalle und orga-
he Stoffe. (Zeitschrift für physiologische
mie, Hoppe-Seyler's, Berlin and Leip-
1921, Bd. 114, p. 51–71.) **PKA**

gCl, AgCN, $AgNO_3$, $CuSO_4$, aniline,
iodine and phenylhydrazine hydro-
ride are all shown to exert a toxic ac-
. In the case of Ag salts the effect is
ortional to the amount of poison. The
effect of Ag salts is instantaneous,
of Cu occurs only after a time; in both
s there appears to be a slight sponta-
is regeneration.

bstract in *Chem. Zentr.*, 1921; Bd. 3, p. 1290;
. abst., 1922, v. 16, p. 264.

2966. —— Über Vergiftungserscheinungen an Amylasen. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Berlin and Leipzig, 1921, Bd. 117, p. 91–145.) **PKA**

Determines inhibiting effect on ptyalin and malt amylase of iodine, KI, Na-thiosulphate, aniline, phenylhydrazine, hydroxylamine, semicarbazide, Na-sulphite, KCN, NH_4-molybdate, Na-tungstate, uranyl sulphate, NaF, $FeCl_3$, $ZnSO_4$, $HgNO_3$, Hg_2Cl_2, $HgCl_2$, HCHO, leucine and alanine. Investigates activators and determines optimal acidity of ptyalin amylase. Determines relation of poisoning to temperature. Results are based on saccharogenic activity and expressed as relative reaction velocity.

Abstract in *Chem. abst.*, 1923, v. 17, p. 1250; *Chem. Zentr.*, 1922, Bd. 1, p. 473.

2967. Sammartino, Ubaldo. Über Vitamine. 6. (Biochemische Zeitschrift, Berlin, 1921, Bd. 125, p. 25–41.) **PPB**

Notes that vitamin accelerates the saccharogenic activity of taka-diastase.

2968. Sherman, Henry C., and Marguerite Wayman. Effect of certain antiseptics upon the activity of amylases. (American Chemical Society, Journal, Easton, 1921, v. 43, p. 2454–2461.) **PKA**

Using commercial and purified preparations of pancreatin amylase, malt amylase and taka-diastase, find that low concentrations of chloroform do not affect commercial preparations but diminish the action of purified preparations; toluene showed little influence on any of the preparations, while formaldehyde and $CuSO_4$ effected a marked inhibition in the action of all enzyme preparations. The percentage loss of enzyme action due to the latter two depended on the concentration of these antiseptics in the system. Results indicate that purified pancreatin is the least resistant and taka-diastase the most resistant.

Abstract in *Chem. Zentr.*, 1922, Bd. 3, p. 929; *Bull. soc. chim. France*, 1922, série 4, tome 32, p. 748; *Chem. abst.*, 1922, v. 16, p. 571.

2969. Sherman, Henry C., and Florence Walker. Influence of certain amino acids upon the enzymic hydrolysis of starch. (American Chemical Society, Journal, Easton, 1921, v. 43, p. 2461–2469.) **PKA**

Addition of neutralized amino acids causes an increase in rate of hydrolysis of starch by purified enzyme preparations; the results are not as marked in the case of commercial preparations. Addition of two of these amino acids produced no greater effect than the same concentration of one of them. Show that the favorable influence is not due to a change in pH, nor to combination of the acid with products of the reaction. Believe the action is due in part

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

to a protection of the enzyme from deterioration in the aqueous dispersion in which it acts.

Abstract in *Chem. Zentr.*, 1922, Bd. 3, p. 929; *Bull. soc. chim. France*, 1922, série 4, tome 32, p. 749.

2970. **Sherman,** Henry C., and Mary L. Caldwell. Influence of arginine, histidine, tryptophan and cystine upon the hydrolysis of starch by purified pancreatic amylase. (American Chemical Society, Journal, Easton, 1921, v. 43, p. 2469–2476.) **PKA**

Tested by measuring the amyloclastic action of purified pancreatic amylase upon "soluble" starch, it is shown that arginine and cystine, like glycine and phenylalinine, influence favorably the digestion of the starch and that histidine and tryptophane do not. Discuss relation of amino acid structure to its activating or protective action.

Abstract in *Chem. Zentr.*, 1922, Bd. 3, p. 929; *Bull. soc. chim. France*, 1922, série 4, tome 32, p. 749.

2971. **Temminck Groll,** J. Over den invloed van de reactie op de werking van pancreas-amylase. (Nederlandsch tijdschrift voor geneeskunde, Haarlem, 1921, jaarg. 65, 2B, p. 2541–2544.)

Available in Library of the New York Academy of Medicine.

Finds that, within the limits pH 4.6–6.8, variations in pH do not affect the activity of pancreas amylase. Beyond these limits rapid inhibition is observed.

Also in *Archives néerlandaises de physiologie de l'homme et des animaux,* La Haye, 1921–22, tome 6, p. 445–449.

Abstract in *Chem. abst.*, 1922, v. 16, p. 3667; *Chem. Zentr.*, 1922, Bd. 1, p. 210.

2972. **Abderhalden,** Emil, and Ernst Wertheimer. Untersuchungen über den Einfluss von aus Hefezellen und Organen gewonnenen Stoffen auf den zeitlichen Verlauf der Spaltung von Substraten durch Polypeptidasen, Karbohydrasen und Esterasen. (Fermentforschung, Leipzig, 1922, Bd. 6, p. 1–26.) **PPH**

Note that amylolytic action is not appreciably influenced by yeast extract or by various optones.

2973. —— Beitrag zur Kenntnis der sogenannten Antifermente. (Fermentforschung, Leipzig, 1922, Bd. 6, p. 286–301.) **PPH**

Find no formation of anti-enzymes upon intravaneous injection of the enzyme into rabbits. Enzymes tested include liver diastase.

Abstract in *Chem. abst.*, 1923, v. 17, p. 3056; *Chem. Zentr.*, 1923, Bd. 1, p. 797.

2974. **Berczeller,** L., and J. Freud. Über die Wirkung des Jods auf die Diastase. (Biochemische Zeitschrift, Berlin, 1922, Bd. 133, p. 493–501.) **PPB**

The amyloclastic action of salivary amylase is almost destroyed by I in KI solution; $KMnO_4$ also inactivates the amylase. Starch is shown to exert a protecting action against the I. Hydrolysis by mineral acids is also inhibited by I.

Abstract in *Chem. Zentr.*, 1923, Bd. 3, p. 315; *Chem. abst.*, 1923, v. 17, p. 1033.

2975. **Bierry,** H. Amylase pancréatique et ion Cl. (Société de biologie, Comptes rendus, Paris, 1922, tome 87, p. 1111.) **QAA**

Pancreatic and intestinal amylases freed of Cl by dialysis are inactive with both starch and glycogen; the presence of Br or Cl is essential for their activity. — *Chem abst.*

Abstract in *Chem. Zentr.*, 1923, Bd. 1, p. 975.

2976. **Boehne,** Carl. Beiträge zur chemischen Kinetik der Kohlehydratverdauung im Duodenum der Säugetiere. (Fermentforschung, Leipzig, 1922, Bd. 6, p. 200–229.) **PPH**

Studies saccharogenic activity of a glycerol extract of beef and sheep pancreas. Using wheat amylose as substrate the influence of phosphates, NaCl, $NaHCO_3$ and CO_2 at various H ion concentrations is determined.

Abstract in *Chem. abst.*, 1923, v. 17, p. 779.

2977. **Fonseca,** H. da. Influence de quelques sels minéraux sur l'action amylolytique de la pancréatine. (Société de biologie, Comptes rendus, Paris, 1922, tome 87, p. 1033–1035.) **QAA**

Finds NaCl and $CaCl_2$ cause a marked acceleration of activity; Zn salts inhibit activity and Na_2SO_4 exerts no effect.

Abstract in *Chem. abst.*, 1923, v. 17, p. 830.

2978. **Biedermann,** W., and Amin Rueha. Fermentstudien. 8. Zur Kenntnis der Wirkungsbedingungen der Amylasen. (Fermentforschung, Leipzig, 1922, Bd. 5, p. 56–83.) **PPH**

A lengthy discussion of literature dealing with relation of pH to enzymic activity. Give experiments showing effect of other ions with constant pH and effect of pH with varying enzyme concentrations.

Abstract in *Jour. chem. soc.*, 1922, v. 122, part 1, p. 65; *Chem. Zentr.*, 1921, Bd. 3, p. 1171.

2979. **Funk,** Eberhard. Über den Einfluss von Kobaltiammoniaken auf die Fermentwirkung der Katalase und Amylase. (Biochemische Zeitschrift, Berlin, 1922, Bd. 128, p. 108–109.) **PPB**

Certain cobalt ammoniates were found to accelerate the action of amylase and retard

ylases, continued.

ivation and Inactivation by Salts, Acids, etc., continued.

t of catalase, both effects being increased an increase in concentration of the salt.

bstract in *Chem. abst.*, 1922, v. 16, p. 1963; *m. Zentr.*, 1922, Bd. 3, p. 177.

0. **Funke,** G. L. Der Einfluss der Was- stoffionenkonzentration auf die Wirkung Diastase von Aspergillus niger. (Aka- nie van Wetenschappen te Amsterdam, rslag, 1922, deel 31, p. 12–14.) ***EL**

'inds rate of hydrolysis of the amylase t a maximum in the region between pH and pH 5.5. Believing the enzyme is an pholyte, determines constants of acid and e. Makes similar determinations with lt amylase.

bstract in *Jour. chem. soc.*, 1922, v. 122, part 1, 96; *Chem. Zentr.*, 1922, Bd. 1, p. 1202.

1. **Hahn,** Amandus. Über den Einfluss itraler Alkalisalze auf diastatische Fer- nte. (Zeitschrift für Biologie, München, 2, Bd. 74, p. 217–228.) **QAA**

'recipitation experiments were made h malt amylase solutions. The optimum culation point is at pH 3.63. Studies h NaCl, KCl, Na_2SO_4, and $NaNO_3$ at ious concentrations of buffer solution d to the conclusion that the facilitating l inhibiting action of neutral alkali salts the activity of amylolytic enzymes is logous to certain precipitation phenom- and referable to an increase or de- ase of the total surface of the colloid yme solution. — *Chem. abst.*

2. **Hahn,** Amandus, and Hugo Meyer. er den Einfluss neutraler Alkalisalze auf statische Fermente. (Zeitschrift für Bi- gie, München, 1922, Bd. 76, p. 227–246.) **QAA**

'he purified amylase of commercial pan- atin exhibits an optimum pH which var- with the nature of the buffer solutions l the activating salt. The commercial ncreatin has the trade name "Rhenania."

bstract in *Chem. abst.*, 1923, v. 17, p. 2121; *m. Zentr.*, 1923, Bd. 1, p. 782.

3. **Jacoby,** Martin, and T. Shimizu. Über stliche Zymogene. 4. Über die Inak- erung und Reaktivierung der Takadia- se. (Biochemische Zeitschrift, Berlin, 2, Bd. 128, p. 95–99.) **PPB**

'akadiastase is not inactivated by Ni, Co, and Fe. It is, however, inactivated by Cl_2 and then reactivated by KCN.

bstract in *Chem. Zentr.*, 1922, Bd. 3, p. 58.

4. **Sherman,** Henry C., and Mary L. dwell. Influence of amino acid in protecting amylase from inactivation by mercury. (American Chemical Society, Journal, Easton, 1922, v. 44, p. 2923–2926.) **PKA**

Find that both glycine and phenylalinine protect purified pancreatic amylase against inactivation by small concentrations of $HgCl_2$. Evidence renders it improbable that traces of Hg were responsible for the failure of histidine and tryptophane to exert a favorable influence on the amyloclastic action of pancreatic amylase.

Abstract in *Chem. abst.*, 1923, v. 17, p. 292; *Chem. Zentr.*, 1923, Bd. 3, p. 1095.

2985. —— Influence of lysine upon the hydrolysis of starch by purified pancreatic amylase. (American Chemical Society, Journal, Easton, 1922, v. 44, p. 2926–2930.) **PKA**

Find that lysine shows no effect upon the amyloclastic action of purified pancreatic amylase but exerts a favorable influence upon its saccharogenic action. In line with earlier views as to protein nature of amylase, its hydrolytic deterioration in water and the protective action of amino acids, suggest that lysine in the enzyme molecule is not split off until the stage of amyloclastic action has been past.

Abstract in *Chem. abst.*, 1923, v. 17, p. 292; *Chem. Zentr.*, 1923, Bd. 3, p. 1096.

2986–2987. Sherman, Henry C., and Nellie M. Naylor. Influence of some organic compounds upon the hydrolysis of starch by salivary and pancreatic amylases. (American Chemical Society, Journal, Easton, 1922, v. 44, p. 2957–2966.) **PKA**

Using favorable H ion and salt concentrations, find that methylamine and ethylamine hydrochlorides, aniline sulphate, benzoic acid, benzamide, anthranilic acid and hippuric acid exert no favorable effect upon the activity of salivary or pancreatic amylases. Contradictory results reported by Rockwood *(entry 2944)* are ascribed to H ion and salt effects. Tryptophane, which does not increase amyloclastic activity, is found to increase saccharogenic activity.

Abstract in *Chem. abst.*, 1923, v. 17, p. 292; *Chem. Zentr.*, 1923, Bd. 3, p. 1096; *Bull. soc. chim. France*, 1923, série 4, tome 34, p. 740.

2988. Tsukiye, Sogen, and Takeo Okada. Über den Einfluss des Vitamins (B) auf die Verdauungsfunktion. (Journal of biochemistry, Tokyo, 1922, v. 1, p. 445–455.)

Available in Library of the New York Academy of Medicine.

Note that the substance increases the amylolytic activity of pancreatic amylase.

Abstract in *Chem. abst.*, 1922, v. 16, p. 4257.

2989. Berczeller, L., and J. Freud. Über die Wirkung der Halogene auf Diastasen.

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

(Biochemische Zeitschrift, 1923, Berlin, Bd. 139, p. 476–481.) **PPB**

Results previously obtained with ptyalin were in general confirmed for malt diastase. Diastatic activity is inhibited by halogens in the order I-Br-Cl. The protective action of starch is greatest with Cl; least with I. Br and Cl do not inhibit the acid hydrolysis of starch; neither is adsorbed by starch, since they do not affect the starch-I color reaction. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1923, Bd. 3, p. 1091.

2990. **Biedermann,** W. Fermentwirkungen durch Nichtfermente. (Wochenschrift für Brauerei, Berlin, 1923, Jahrg. 40, p. 46–48, 51–53.)

Available in Library of the Department of Agriculture.

Discusses influence of oxygen on amylolytic action and hydrolysis of starch by albumoses and amino acids.

Abstract in *Chem. abst.*, 1924, v. 18, p. 2345; *Chem. Zentr.*, 1923, Bd. 3, p. 498.

2991. **Fonseca,** H. da. Action de divers ions sur l'amylase pancréatique. (Société de biologie, Comptes rendus, Paris, 1923, tome 88, p. 313–315.) **QAA**

2992. **Haehn,** Hugo, and HANS SCHWEIGART. Zur Kenntnis der Kartoffelamylase. (Zerlegung in eine organische Komponente und Neutralsalze.) (Biochemische Zeitschrift, Berlin, 1923, Bd. 143, p. 516–526.) **PPB**

Find that neutral salts and amino acids increase the activity of potato amylase, while salts of heavy metals inhibit the action. By a method of dialysis and ultra-filtration obtain inactive salt free preparations of the amylase, which are reactivated by salts.

Also in *Zeitschrift für Spiritusindustrie*, Berlin, 1925, Jahrg. 48, p. 55–56, 71–72.

Abstract in *Jour. soc. chem. ind.*, 1924, v. 43, p. 191B; *Chem. Zentr.*, 1924, Bd. 1, p. 1389; *Chem. abst.*, 1924, v. 18, p. 2181.

2993. **Hagihara,** Jitsuichi. Über den Einfluss von Kolloiden auf Fermente. 2. (Biochemische Zeitschrift, Berlin, 1923, Bd. 142, p. 222–227.) **PPB**

Investigates effect of cholesterol and lecithin on activity of ptyalin, malt and takadiastases at various H ion concentrations. In neither case was a favorable action exhibited.

Abstract in *Jour. soc. chem. ind.*, 1924, v. 43, p. 69B; *Chem. Zentr.*, 1924, Bd. 1, p. 680.

2994. **Kita,** Genitsu, and KAKUO SUZUKI. Über den Einfluss der Kambaraerde (saure Bleicherde) auf einige hydrolytische Enzyme. (Wochenschrift für Brauerei, Berlin, 1923, Jahrg. 40, p. 79–80.)

Available in Library of the Department of Agriculture.

Taka-diastase, malt diastase and invertase are activated by the presence of Kambara earth, although its aqueous extract is without action. Suggest use of the earth as an activator in technical saccharification.

Abstract in *Chem. Zentr.*, 1923, Bd. 4, p. 24.

2995. **Koga,** Torao. Über die Diastase aktivierende Kraft des Serums. (Biochemische Zeitschrift, Berlin, 1923, Bd. 141, p. 410–429.) **PPB**

Pancreatic amylase is activated by NaCl and blood serum, particularly by the latter. The nature of the activating substance is investigated.

Abstract in *Chem. abst.*, 1924, v. 18, p. 1678.

2996. **Mori,** Gensichi. A preliminary notice on the inhibitory action of the salts of silver and some other heavy metals on amylase. (Journal of biochemistry, Tokyo, 1923, v. 2, p. 117–129.)

Available in Library of the New York Academy of Medicine.

Determines inhibiting influence of Ag, Au, Cu and Pb salts, the inhibition, in all cases, being a function of the salt concentration. The saccharogenic activity was measured by digesting the enzyme and 2% soluble starch at a temperature of 30° and a pH of 5.6 and determining the resulting maltose at intervals of 10 minutes. A calculation of reaction velocity indicates that the molecular weight of amylase is about 20,000.

Abstract in *Chem. abst.*, 1923, v. 17, p. 1807.

2997. **Olsson,** Urban. Vergiftungserscheinungen an Malzamylase und Beiträge zur Kenntnis der Stärkeverflüssigung. 3. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Berlin and Leipzig, 1923, Bd. 126, p. 29–99.) **PKA**

Determines action of $CuSO_4$, I and aniline on the liquefying and saccharifying power of malt amylase. With aniline the liquefying power was unaffected but saccharifying power was decreased 21%. Determines reaction constant for liquefaction and for saccharification. Also studies poisoning of malt amylase by $AgNO_3$.

Abstract in *Chem. Zentr.*, 1923, Bd. 3, p. 79.

2998. **Petrunkin,** M. L. Zur Frage der Amylase in der grauen Hirnsubstanz des Menschen. (Auszug.) (Chemisches Zentralblatt, Leipzig and Berlin, 1923, Bd. 3, p. 503.) **PKA**

The amylase from the gray brain substance is destroyed by the smallest amounts

ylases, continued.

ivation and Inactivation by Salts, Acids,
etc., continued.

acids (HCl and H_2SO_4) and alkalies
.OH and KOH) but its action is stimu-
d by phosphatides and bile. — *Chem.*
.

9. **Pincussen,** Ludwig. Über den Ein-
s von Kolloiden auf Fermente. 1. (Bio-
mische Zeitschrift, Berlin, 1923, Bd. 142,
12–221.) **PPB**

/ork includes determination of influence
olloidal iron at varying H ion concentra-
s on action of commercial ptyalin, malt,
taka-diastase preparations. Results do
conform to any general rule.
bstract in *Chem. Zentr.*, 1924, Bd. 1, p. 680.

0. **Pringsheim,** Hans, and Harald Goro-
kı. Über die Sekretion und Aktivität
Speichelamylase. (Biochemische Zeit-
rift, Berlin, 1923, Bd. 140, p. 175–178.)
PPB

comparison of the amylolytic activity
human saliva collected under carefully
dardized normal conditions and after
shing the teeth with inactive paste and
paste containing different amounts of
oactive substance revealed no differ-
e of a qualitative or quantitative nature.
bstract in *Chem. Zentr.*, 1924, Bd. 1, p. 1218.

1. **Schwarz,** Carl. Über die Wirkung
Kristallose, Saccharin und Parasac-
rin auf die Speicheldiastase. (Ferment-
chung, Leipzig, 1923, Bd. 7, p. 282–300.)
PPH

either saccharin nor its Na salt (crystal-
) nor p-saccharin inhibits the amylolytic
on of saliva. Even in concentrations of
% an inhibitory action is doubtful. The
ged inhibition described in the litera-
is accounted for by the acid or alkaline
tion of the medium employed, and can-
be verified when a phosphate buffer is
l. — *Chem. abst.*

2. **Sherman,** Henry C., and Florence
lker. Effect of amino acids in retarding
hydrolytic decomposition of an enzyme
ncreatic amylase). (American Chemical
iety, Journal, Easton, 1923, v. 45, p.
–1964.) **PKA**

olutions of pancreatic amylase which
e stood 1 hour at 40° show considerably
ater activity when alanine has been
iously added. Alanine and glycine pro-
e marked increases of activation when
digestion temperature is raised and
n the digestion period is prolonged. Re-
s confirm previous conclusion that the apparent activating action of amino acids is due to the fact that they retard deterioration of the enzyme in its aqueous solution.

Abstract in *Bull. soc. chim. France*, 1923, série 4, tome 34, p. 2010; *Chem. Zentr.*, 1924, Bd. 1, p. 566; *Chem. abst.*, 1923, v. 17, p. 3515.

3003. **Smorodinzew,** I. A., and A. S. Novikow. Der Einfluss verschiedener Präparate der Chiningruppe auf die fermentativen Funktionen des Organismus. 2. Der Einfluss einiger Chinin- und Harnstoffverbindungen auf die Speichelamylase. (Biochemische Zeitschrift, Berlin, 1923, Bd. 140, p. 12–16.) **PPB**

The accelerating action of quinine on amylolytic activity is reduced by the contrary action of SO_4 or urea in a given preparation. The retarding action of the Cl, NO_3, and SO_4 salts of urea depends on the anion, chiefly. Urea itself weakly ionized, has a weaker action. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1923, Bd. 3, p. 1371.

3004. **Smorodinzew,** J. A., and Fr. E. A. Iliin. Der Einfluss einiger Arsen- und Antimonpräparate auf die Speichelamylase. (Biochemische Zeitschrift, Berlin, 1923, Bd. 141, p. 297–303.) **PPB**

The time required to reach the achromic point is delayed by 0.01–0.00004 N $SbCl_3$; 0.18-0.0006 N SbO.K tartrate; and 0.1-0.0125 N solutions of K_2HAsO_3, Na_2HAsO_3 or Na_2HAsO_4. — *Chem. abst.*

Abstract in *Chem. Zentr.*, 1924, Bd. 1, p. 354.

3005. **Villaroel,** M.-J. La vitamine B comme activateur des ferments. (Société de biologie, Comptes rendus, Paris, 1923, tome 88, p. 376–377.) **QAA**

Notes that vitamin B accelerates the action of amylase and taka-diastase.

3006. **Benedict,** S. R. A reaction given by insulin solutions in vitro. (Society for Experimental Biology and Medicine, Proceedings, New York, 1924, v. 21, p. 529.) **QAA**

Solutions of insulin markedly accelerate the action of amylolytic enzymes. The effect does not appear to be due to the pH nor to the protein content of the solutions.

3007. **Biedermann,** W. Fermentwirkungen durch Nichtfermente. (Zeitschrift für angewandte Chemie, Leipzig and Berlin, 1924, Jahrg. 37, p. 71–73.) **PKA**

Discusses coagulation of the zymogen by heating saliva solutions; regeneration of activity by the coagulum or by saliva ash; degradation of amylose by NaCl and by saliva ash; and influence of amino acids on degradation by salts.

Abstract in *Jour. chem. soc.*, 1924, v. 126, part 1, p. 465.

Amylases, continued.

Activation and Inactivation by Salts, Acids, etc., continued.

3008. **Caldwell,** Mary L. A study of the influence of the new sulfur-containing amino acid (Mueller) on the activity of pancreatic amylase. (Journal of biological chemistry, Baltimore, 1924, v. 59, p. 661–665.) **PPB**

Although in common with tryptophane and lysine the new S-containing amino acid exerts no apparent influence upon the amyloclastic activity of the enzyme, it is found to resemble a number of "natural" α-amino acids in that it favors the saccharogenic activity of the amylases.

Abstract in *Chem. Zentr.,* 1924, Bd. 2, p. 673.

3009. **Chrzaszcz,** Tadeusz. Die dextrinierende Kraft der Malzamylase verschiedener Getreidearten und einige Beobachtungen über die Reaktivierung der durch hohe Temperatur inaktivierten Amylase. (Biochemische Zeitschrift, Berlin, 1924, Bd. 150, p. 60–92.) **PPB**

Investigates influence of pH, of amount of enzyme, of temperature and of thickness of starch paste upon the dextrinizing power of various cereal amylases. Also investigates inactivation of dextrinizing power by heat and regeneration by aeration.

Abstract in *Chem. abst.,* 1925, v. 19, p. 557; *Chem. Zentr.,* 1924, Bd. 2, p. 1803.

3010. **Dryerre,** Henry. Does the thiocyanate in the saliva activate the ptyalin? (Quarterly journal of experimental physiology, London, 1924, v. 14, p. 225–228.)

Available in Library of the New York Academy of Medicine.

3011. **Holmberg,** Oskar. Studien über Leberamylase. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, Berlin and Leipzig, 1924, Bd. 134, p. 68–96.) **PKA**

The amylase content of hog liver varies in the different lobes. Liver tissue contains substances which inhibit pancreatic amylase. The acidity optimum of liver amylase in the simultaneous presence of NaCl and phosphate buffer is pH 6.9. Dialysis increases the activity 6 times for the dry substance, but the loss of enzyme amounts to 50%. Amylase action reaches an optimum with 0.008-0.5N NaCl and KCl. I ions inhibit saccharification but accelerate dextrin formation. — *Chem. abst.*

Abstract in *Jour. chem. soc.,* 1924, v. 126, part 1, p. 799; *Chem. Zentr.,* 1924, Bd. 2, p. 55.

3012. —— Einwirkung von Kaliumjodid auf die Verzuckerung der Stärke durch verschiedene Amylasen. (Biochemische Zeitschrift, Berlin, 1924, Bd. 145, p. 244–248.) **PPB**

In the presence of KI, the saccharogenic action of malt amylase is inhibited while that of salivary and pancreatic amylase is increased. With increasing concentration of KI, the amyloclastic action of liver amylase increases while the saccharogenic action decreases.

Abstract in *Chem. abst.,* 1925, v. 19, p. 996; *Chem. Zentr.,* 1924, Bd. 2, p. 478.

3013. **Lüers,** Heinrich, and Felix Albrecht. Über Antiamylase. Ein Beitrag zur Frage der Antienzyme. (Fermentforschung, Leipzig, 1924, Bd. 8, p. 52–72.) **PPH**

Subcutaneous injection of amylase in rabbits results in the formation of an antiprotein which precipitates the protein accompanying the injected amylase and in the formation of a specific anti-amylase. The inhibition is not due to a change in pH nor to protein precipitation. Non-specific adsorption by proteins does not affect malt amylase. The anti-amylase prepared by injection of malt amylase shows no inhibiting action toward pancreatic or salivary amylases.

Abstract in *Chem. abst.,* 1924, v. 18, p. 3389; *Chem. Zentr.,* 1924, Bd. 2, p. 2341.

3014. **Mikawa,** Yoshiyuki. Über die Wirkung des Uranylacetats. (Biochemische Zeitschrift, Berlin, 1924, Bd. 149, p. 540–549.) **PPB**

3015. **Rockwood,** Elbert W. The mechanism of the action of amino promoters upon enzymes. (American Chemical Society, Journal, Easton, 1924, v. 46, p. 1641–1645.) **PKA**

Ptyalin solutions are allowed to stand for 67–120 hours before digestion with 1% starch solution. In case 1, no promoter was present during standing or digestion, in 2, a promoter was present during standing and digestion and in 3, a promoter was added at the beginning of digestion. Using glycine and aspartic acid as promoters, finds their action is due partly to prevention of enzyme decay but chiefly to a specific stimulating action of the amino acid. Evidence is considered as justifying the term "auxo-amylase."

3016. **Temminck Groll,** J. De invloed van de waterstofionen-concentratie op de werking van eenige amylasen. (Nederlandsch tijdschrift voor geneeskunde, Haarlem, 1924, jaarg. 68, 1 B, p. 2832–2837.)

Available in Library of New York Academy of Medicine.

Also in *Archives néerlandaises de physiologie de l'homme et des animaux,* 1924, tome 9, p. 520–528.

Abstract in *Jour. chem. soc.,* 1924, v. 126, part 1, p. 1383; *Chem. Zentr.,* 1924, Bd. 2, p. 1595.

ases, continued.

ation and Inactivation by Salts, Acids,
c., continued.

Chrzaszcz, Tadeusz, and others.
den Einfluss der Wasserstoffionen-
ntration auf die Dextrinierung der
e durch gereinigte Malzamylase. Von
rzaszcz, Z. Bidziński und A. Krause.
hemische Zeitschrift, Berlin, 1925, Bd.
. 155–171.) **PKA**

definite optimum pH was found in the
inizing of starch by amylase. The
um pH depends on the temperature,
iastatic action, the buffers present and
otective action of the starch. A range
I 4.4 to 5.4 was optimum at a tempera-
range of 20° to 75°. The temperature
ctivation is in part determined by the
ng pH. — *Chem. abst.*

Clifford, Winifred M. The effect of
en salts on salivary digestion. (Bio-
ical journal, Cambridge, 1925, v. 19,
–220.) **PPB**

tract in *Chem. Zentr.*, 1925, Bd. 2, p. 1062.

. **Fricker,** E. Weitere Untersuch-
über den Einfluss von Bromkalium
odkalium auf die diastatische Wirkung
enschlichen Mundspeichels. (Schweiz-
e medizinische Wochenschrift, Basel,
Jahrg. 55, p. 864–867.)

ilable in Library of New York Acad-
f Medicine.

Cl, KBr, and KI hasten the decoloration
rch-I blue. Determinations of the sugar
ed with and without these salts show, in
ast to the previous erroneous assump-
that they inhibit diastatic hydrolysis. —
. *abst.*

. **Hulpieu,** H. The effect of certain
on the action of enzymes. (University
klahoma, Studies, no. 21, 1925, p. 22–

ailable in Library of Congress.

effect of various bases (hydroxides of
, Ca, Ba and Sr and atropine) on the
ty of pepsin and of 2 amylases was
studied, with a view to deducing evidence for the enzymic nature of cell division and other cell phenomena. — *Chem. abst.*

3019. **Loeper,** M., and A. Mougeot. Les eaux minérales bicarbonatées carboniques ont-elles une action activante sur les amylases? (Société de biologie, Comptes rendus, Paris, 1925, tome 92, p. 569–571.) **QAA**

A marked activation is noted and it is shown that the activation is not caused by biological factors, by radioactivity nor by a change in pH.

Abstract in *Chem. Zentr.*, 1925, Bd. 2, p. 1173; *Chem. abst.*, 1926, v. 20, p. 2505.

3020. **Piccinini,** Guido. Einfluss des Morphins und seiner Derivate auf die experimentelle Stärkespaltung des Pankreas. (Auszug.) (Chemisches Zentralblatt, Leipzig and Berlin, 1925, Bd. 2, p. 1066.) **PKA**

3021. **Schermerhorn,** A. R. Diastase activity of human saliva and the effect of dentifrices upon it. (Dental cosmos, Philadelphia, 1925, v. 67, p. 238–244.) **WYA**

3022. **Sherman,** Henry C., and others. Influence of tryptophan and other amino acids upon the stability and enzymic activity of pancreatic amylase. By H. C. Sherman, Mary L. Caldwell and N. M. Naylor. (American Chemical Society, Journal, Easton, 1925, v. 47, p. 1702–1709.) **PKA**

Abstract in *Chem. abst.*, 1925, v. 19, p. 2350; *Chem. Zentr.*, 1925, Bd. 2, p. 1989.

3023. **Walker,** Hilda. The influence of different substances on the diastatic activity of saliva. (Biochemical journal, Cambridge, 1925, v. 19, p. 221–225.) **PPB**

Abstract in *Chem. Zentr.*, 1925, Bd. 2, p. 406.

3023A. **Windisch,** W. Malzamylase. (Wochenschrift für Brauerei, München, 1925, Jahrg. 42, p. 276–278, 283–286, 290–293.)

Available in Library of the Department of Agriculture.

Abstract in *Chem. abst.*, 1926, v. 20, p. 2386.

OPTIMUM AND INACTIVATING TEMPERATURES

Lassaigne, J. L. Recherches pour
miner le mode d'action qu'exerce la
pure sur l'amidon à la température
rps des animaux mammifères et à celle
75 degrés centigrades. (Académie des
ces, Comptes rendus, Paris, 1845, tome
1347–1350.) ***EO**

3025. **Hueppe,** F. Ueber das Verhalten ungeformter Fermente gegen hohe Temperaturen. (Pharmaceutische Centralhalle, Berlin, 1881, Jahrg. 22, p. 488–489.)

Available in Library of Columbia College of Pharmacy.

Notes that dried preparations of malt amylase and pancreatin may be heated as

Amylases, continued.

Optimum and Inactivating Temperatures, continued.

high as 100° without destroying their saccharifying power. Activity is completely destroyed by heating to 170°.

Abstract in *Chem. Centr.*, 1881, p. 745–746.

3026. **Chittenden,** R. H., and W. E. Martin. Influence of temperature on the relative amylolytic action of saliva and the diastase of malt. (Sheffield Scientific School, Collected papers of the Laboratory of Physiological Chemistry, New Haven, 1884–85, v. 1, p. 117–125.) **PPB**

3027. **Mueller-Thurgau,** Hermann. Zur Kenntniss der Wirkung von Diastase und Invertin, besonders in pflanzenphysiologischer Hinsicht. (Landwirthschaftliche Jahrbücher, Berlin, 1885, Jahrg. 14, p. 795–822.)

Available in Library of Columbia University.

Notes effect of various temperatures on activity of amylase.

Abstract in *Wag. Jahr.*, 1886, Jahrg. 32, p. 730.

3028. **Bourquelot,** Em. Sur les caractères de l'affaiblissement éprouvé par la diastase sous l'action de la chaleur. (Académie des sciences, Comptes rendus, Paris, 1887, tome 104, p. 576–579.) ***EO**

Normal diastase and diastase which has been heated to 68° show equal activity during the first stages of starch hydrolysis, but the production of reducing substances by the heated diastase was very much slower than by the normal diastase. Suggests the presence of 2 enzymes.

Abstract in *Jour. soc. chem. ind.*, 1888, v. 7, p. 513; *Wag. Jahr.*, 1887, Jahrg. 33, p. 1018.

3029. **Petzoldt,** H. Studien über Diastase. (Wochenschrift für Brauerei, Berlin, 1890, Jahrg. 7, p. 265–269.)

Available in Library of the Brewers' Academy.

Finds that amylase is protected from heat inactivation by the presence of a saccharified mash or maltose. Sucrose exhibits no protective action.

Abstract in *Chem. Centr.*, 1890, Bd. 1, p. 886; *Wag. Jahr.*, 1890, Jahrg. 36, p. 820.

3030. **Lintner,** Carl J. Über den schützenden Einfluss der Stärkeumwandlungsprodukte gegenüber der Diastase bei höheren Temperaturen. (Zeitschrift für das gesammte Brauwesen, München and Leipzig, 1892, Jahrg. 15, p. 300–301.)

Available in Library of the Chemists Club.

Believes that the protective influence is due principally to the fact that activity is possible in the presence of starch.

Abstract in *Chem. Centr.*, 1892, Bd. 2, p. 532.

3031. **Hofmeister,** V. Beiträge zur Frage der Nahrungsmittelfermente. (Archiv für wissenschaftliche und praktische Thierheilkunde, Berlin, 1894, Bd. 20, p. 23–34.)

Available in Library of the Surgeon General's Office.

Discusses presence of amylolytic ferments in various food materials. Optimum diastatic activity occurs at a temperature of 39–40°.

Abstract in *Chem. Centr.*, 1894, Bd. 1, p. 335.

3032. **Nasse,** Otto. Wirkung der Fermente. (Auszug.) (Chemisches Central-Blatt, Berlin, 1895, Bd. 1, p. 436–438.) **PKA**

Notes that heated solutions of amylase show lower electrical resistance than solutions of unheated amylase. Also that addition of starch increases the conductivity of an amylase solution, whereas addition of a non-substrate does not have this effect.

3033. **Krieger,** Josef. Richtige Maischtemperaturen. (Allgemeiner Anzeiger für Brauereien, Mannheim, 1898, Jahrg. 14, p. 401–404.)

Available in Library of the Brewers' Academy.

Temperatures up to 66¼° are the most favorable for saccharification; the maltodextrins are produced most extensively between 67½° and 70°; flavorless dextrins are formed up to 75°; and higher temperatures are fatal to diastase.

3034. **Pugliese,** Angelo. Ueber den Einfluss der Erwärmung auf diastatische Fermente. (Archiv für die gesamte Physiologie des Menschen und der Tiere, Pflüger's, Bonn, 1898, Bd. 69, p. 115–131.) **QCA**

Shows that the activity of ptyalin, taka-, and malt diastase, and especially their behaviour towards the influence of temperature, depends very largely on the concentration, reaction, and salt- and albumin content of the solutions.

Abstract in *Jour. soc. chem. ind.*, 1898, v. 17, p. 364; *Chem. Centr.*, 1898, Bd. 1, p. 265.

3035. **Mueller,** Max. Über das Wachstum und die Lebenstätigkeit von Bakterien, sowie den Ablauf fermentativer Prozesse bei niederer Temperatur unter spezieller

lases, continued.

num and Inactivating Temperatures,
ontinued.

cksichtigung des Fleisches als Nah-
smittel. (Archiv für Hygiene, München
Berlin, 1903, tome 47, p. 127–193.) **SPA**

tes that amylase displays some ac-
even at zero degrees.

Ford, John S. Note on the estima-
of sugars and starch in vegetable sub-
es. (Analyst, London, 1904, v. 29, p.
79.) **PKA**

termines diastatic power of malt
les after boiling with varying concen-
ns of alcohol. Results show that 95%
ol is most effective in destroying the
ase present. The enzyme is only
ly affected by boiling with ether, pe-
m ether, acetone, benzene and to-
.

stract in *Jour. soc. chem. ind.*, 1904, v. 23, p.
hem. Centr., 1904, Bd. 2, p. 1170.

Chrzaszcz, Tadeusz. Das Vorkom-
der Amylase, sowie ihr Verhalten be-
ch der stärkeverzuckernden und -lö-
n Kraft. [Preliminary notice.] (Zeit-
ft für Spiritusindustrie, Berlin, 1908,
. 31, p. 52.) **†† VTZA**

ncludes that in all plants the intensity
e amyloclastic action is proportional to
saccharogenic action and both vary
the plant species. The optimum tem-
ure for amylase from resting seeds is
ical with that for the enzyme from ger-
ting seeds.

stract in *Jour. soc. chem. ind.*, 1908, v. 27, p.
hem. Zentr., 1908, Bd. 1, p. 866.

Klempin, Paul. Studien über das
olytische Enzym im Hafer. (Bioche-
e Zeitschrift, Berlin, 1908, Bd. 10, p.
13.) **PPB**

e optimum activity of the amylase of
when used in the form of a glycerol
ct, is exhibited between 40 and 70°.
enzyme is destroyed when heated at
°. The law of Schütz and Borissow
in this case.

stract in *Jour. soc. chem. ind.*, 1908, v. 27, p.
hem. abst., 1909, v. 3, p. 918; *Chem. Zentr.*,
Bd. 2, p. 80.

Apsit, J., and EDMOND GAIN. Les
s tues par la chaleur gardent-ils in-
s leurs facultés diastasiques? (Société
iologie, Comptes rendus, Paris, 1909,
67, p. 367–369.) **QAA**

d that grain killed by holding at 65°
$_2$O for 20 minutes still contains amy-
hose activity is not weakened by heat.

Chrzaszcz, Tadeusz. Untersuchun-
ber die Amylase des ungekeimten Getreides und des Malzes. (Zeitschrift für Spiritusindustrie, Berlin, 1909, Jahrg. 32, p. 520, 535–539, 544, 556–557, 569–571, 578–579.) **†† VTZA**

The amylases of a large number of germinated and ungerminated cereals all show the same optimum saccharifying temperature of 50–55° and optimum liquefying temperature of 60–65°, the activity of the enzyme, however, varying according to the origin. Liquefying action always accompanies the saccharifying action and the experimenter was unable to effect a separate inhibition of either. Describes a viscosity method for estimating liquefying activity.

Abstract in *Jour. soc. chem. ind.*, 1910, v. 29, p. 103; *Chem. abst.*, 1910, v. 4, p. 2540; *Jour. chem. soc.*, 1910, v. 98, part 2, p. 994; *Chem. Zentr.*, 1910, Bd. 1, p. 288.

3041. Slosse, A., and H. LIMBOSCH. De l'action de l'amylase du pancréas dans ses rapports avec la température du milieu. (Archivio di fisiologia, Firenze, 1909, v. 7, p. 100–112.)

Available in Library of the New York Academy of Medicine.

Pancreatic juice contains an amylodextrinase; no glucose was formed and maltose was the only product of saccharification. The optimum temperature of this enzyme is 36–40° and, although saliva amylase has its optimum temperature at 58°, there is probably no essential difference between the 2 enzymes.

3042. Gramenizki, M. J. Der Einfluss verschiedener Temperaturen auf die Fermente und die Regeneration fermentativer Eigenschaften. (Zeitschrift für physiologische Chemie, Hoppe-Seyler's, 1910, Bd. 69, p. 286–300.) **PKA**

Finds a solution of taka-diastase may be heated to 115° and the enzyme partially regenerated upon standing. Regeneration is facilitated by the presence of starch. The amyloclastic enzyme of "maltin" may be regenerated after heating at 100°, although the saccharogenic enzyme seems to be completely destroyed.

Abstract in *Jour. soc. chem. ind.*, 1910, v. 29, p. 1403; *Chem. Zentr.*, 1911, Bd. 1, p. 239.

3043. Visco, Sabato. Contributo alla biologia degli enzimi. L'azione del calore sulla lipasi ed amilasi del succo pancreatico. (Reale accademia dei Lincei, Atti, Rendiconti, Roma, 1910, v. 19, semestre 1, p. 597–603.) *** ER**

Pancreatic amylase is comparatively resistant to a temperature of 39–41°. The presence of starch checks decomposition.

French translation in *Archives italiennes de biologie*, 1910, tome 54, p. 243–249, *QAA*.

Abstract in *Chem. abst.*, 1912, v. 6, p. 2086; *Chem. Zentr.*, 1910, Bd. 2, p. 325.

Amylases, continued.

Optimum and Inactivating Temperatures, continued.

3044. **Laer,** Henri van. Sur une action spéciale exercée par la température sur la diastase saccharifiante du malt. (International Brewers' Congress, 2nd, Chicago, 1912, [Proceedings], p. 119–129.)

Available in Library of the Brewers' Academy.

English translation, p. 129–140.

3045. **Gramenizky,** M. J. Der Zusammenhang zwischen dem aktiven und inaktiven Zustande des Ferments und der Oberflächenspannung desselben. (Biochemische Zeitschrift, Berlin, 1913, Bd. 52, p. 142–154.) **PPB**

Destruction of the activity of taka-diastase by heat is accompanied by a reduction in surface tension of the solution; the restoration of activity on standing is accompanied by an increase in surface tension. It is suggested that the lowering of the surface tension causes an increase in the size of the colloidal particles.

Abstract in *Jour. soc. chem. ind.,* 1913, v. 32, p. 762; *Chem. Zentr.,* 1913, Bd. 2, p. 518.

3046. —— Über den Einfluss von Säuren und Alkalien auf das im Stadium der Regeneration befindliche diastatische Ferment. (Biochemische Zeitschrift, Berlin, 1913, Bd. 56, p. 78–81.) **PPB**

Studies regeneration of amylase after partial inactivation by heat.

Abstract in *Chem. abst.,* 1914, v. 8, p. 1130; *Bull. assoc. chimistes,* 1913–14, tome 31, p. 533; *Bull. soc. chim. France,* 1915, série 4, tome 18, p. 637.

3047. **Bierry,** H., and J. Larguier des Bancels. Thermolabilité de l'amylase pancréatique. (Société de biologie, Comptes rendus, Paris, 1914, tome 77, p. 146–147.) **QAA**

Pancreatic juice was dialyzed, filtered and redialyzed. The liquid exhibited amylolytic activity only in the presence of salts. Activity was completely destroyed by heating to 98°.

Abstract in *Chem. abst.,* 1917, v. 11, p. 607; *Bull. soc. chim. France,* 1915, série 4, tome 17, p. 142.

3048. **Doby,** G. Über Pflanzenenzyme. 2. Die Amylase der Kartoffelknolle. (Biochemische Zeitschrift, Berlin, 1914, Bd. 67, p. 166–181.) **PPB**

Amylase, prepared from the juice of the potato, shows an optimum temperature of 40°. Notes the activating and inhibiting actions of various salts.

Abstract in *Chem. abst.,* 1915, v. 9, p. 476; *Jour. chem. soc.,* 1915, v. 108, part 1, p. 362; *Chem. Zentr.,* 1915, Bd. 1, p. 683; *Bull. soc. chim. France,* 1916, série 4, tome 20, p. 456.

3049. **Lombroso,** Ugo. Sulla distruzio
degli enzimi pancreatici per opera del calo
e sulle sostanze che ostacolano talo azion
(Archivio di farmacologia sperimentale
scienze affine, Siena, 1914, v. 18, p. 40
424.)

Available in Library of the Surgeon Ge
eral's Office.

Notes that amylase and protease a
more stable against heat than lipase. T
presence of hydrolytic products hinders d
composition.

Abstract in *Chem. abst.,* 1915, v. 9, p. 10
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relation to temperature and other exter
conditions. (Abstract.) (Chemical abstrac
Easton, 1918, v. 12, p. 1871.) **PK**

The optimum temperature for a numb
of animal amylases is recorded.

3051. **Maestrini,** Dario. Contributo a
conoscenza degli enzimi. 1. Amilasi de
orzo germogliato. (Reale accademia
Lincei, Atti, Rendiconti, Roma, 1919, v.
semestre 2, p. 393–394.) ***E**

Obtains an active extract by extracti
with water containing .003 mol. of ace
acid. Finds a maximum yield of reduci
sugar at 45°.

Reprinted in further detail in *Archives italien
de biologie,* Pise, 1922, tome 71, p. 74–82, *QAA.*

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Chem. Zentr., 1922, Bd. 1, p. 415.

3052. **Koenig,** Adolf. Untersuchung
über den Einfluss von Temperaturen a
Fermente, besonders von Lab und Peps
(Biochemische Zeitschrift, Berlin, 1920,
110, p. 266–286.) **P**

Notes that the activity of Merck's d
stase, as determined by digestion of sta
to the achromic point, was unaffected
temperature variations between 5 and 40

3053. **Biedermann,** W. Die Regenerati
der Diastase und ihre Abhängigkeit v
Sauerstoff. (Biochemische Zeitschrift, B
lin, 1922, Bd. 129, p. 582–593.) **P**

Finds that previous aeration of the s
strate solution tends to regenerate the a
lolytic activity of saliva which has b
diminished by heating.

Abstract in *Chem. abst.,* 1922, v. 16, p. 2
Chem. Zentr., 1922, Bd. 3, p. 525.

3054. **Ernstroem,** Efr. Über den Tempe
turkoeffizienten der Stärkespaltung und
Thermostabilität der Malzamylase und

ases, continued.

num and Inactivating Temperatures,
ontinued.

lins. (Zeitschrift für physiologische
nie, Hoppe-Seyler's, Berlin and Leip-
922, Bd. 119, p. 190–263.) **PKA**

arge number of experiments with both
nes includes determination of optimum
relation of NaCl concentration to ac-
, temperature coefficients of starch hy-
sis, relation of NaCl to temperature
ant, estimation of destruction tempera-
relation of NaCl to destruction tem-
ure and relation of inactivating coef-
t to temperature.

tract in *Jour. chem. soc.*, 1922, v. 122, part 1,
; *Chem. Zentr.*, 1922, Bd. 3, p. 279; *Bull. soc.*
France, 1923, série 4, tome 34, p. 1625.

Lecoq, Raoul. Sur l'action diasta-
de la farine de malt et des autres dé-
du malt (extraits liquides, pâteux et
. (Journal de pharmacie et de chimie,
, 1922, série 7, tome 25, p. 18–25.)

ailable in Library of the New York
emy of Medicine.

e optimum temperature of diastatic
n on starches is 75°. Malt flour has
ull diastase content of the malt, with
amounts of maltose, while commercial
cts are rich in maltose, but deficient in
se, which has been partly destroyed
e processes of manufacture. — *Chem.*

tract in *Bull. soc. chim. France*, 1922, série 4,
2, p. 747.

Lüers, Heinrich, and Paul Lorinser.
die Hitzeinaktivierung der Amylase
hängigkeit von der Wasserstoffionen-
ntration. (Biochemische Zeitschrift,
n, 1922, Bd. 133, p. 487–492.) **PPB**

ve determined heat inactivation con-
of green malt amylase at a number of
ies ranging from pH 3.40 to 6.10.
the constant is lowest at pH 5.

tract in *Chem. Zentr.*, 1923, Bd. 3, p. 314.

Maestrini, Dario. Contributo alla
cenza degli enzimi. 8. Sulla ricom-
del potere amilolitico della saliva
umana, dopo ebollizione. (Reale acca-
dei Lincei, Atti, Rendiconti, Roma,
v. 31, semestre 2, p. 161–163.) * **ER**

rch solution in contact with saliva,
for 1.5 hours, shows after several
measurable amounts of reducing su-
In contact with 0.9% NaCl, under the
treatment, reducing sugar is also pro-
but usually in less amount. Agar cul-
show the effect is not due to bacteria.
n solution alone, treated in the same
n, shows no trace of reducing sugar
even after some months. Oxygen appears to facilitate the action. — *Chem. abst.*

Summarized in *Archives italiennes de biologie*, 1923, tome 72, p. 112–113, *QAA*.

Abstract in *Chem. Zentr.*, 1923, Bd. 1, p. 1374.

3058. **Sjöberg,** Knut. Beiträge zur Kenntnis der Amylase in Pflanzen. 2. Die Temperaturempfindlichkeit der Amylase von Phaseolus vulgaris. (Biochemische Zeitschrift, 1922, Berlin, Bd. 133, p. 294–330.) **PPB**

Compares the saccharogenic and amyloclastic activities of the amylase of bean (Phaseolus vulgaris) by determining influence of acidity, temperature coefficient, relation of heat resistance to acidity, time course of inactivation, relation of inactivating coefficient to temperature, temperature coefficient of inactivating constant, and influence of NaCl. Results indicate that two enzymes are engaged in the conversion of starch to sugar.

Abstract in *Chem. abst.*, 1923, v. 17, p. 795; *Jour. soc. chem. ind.*, 1923, v. 42, p. 196A; *Chem. Zentr.*, 1923, Bd. 3, p. 161–162.

3059. **Chrzaszcz,** Tadeusz. Einfluss der Temperatur auf die Wirkung der Amylase. Die Wirkung der verzuckernden Kraft der Amylase. (Biochemische Zeitschrift, Berlin, 1923, Bd. 142, p. 416–439.) **PPB**

Determines optimal temperatures of cereal amylases at pH 4.9; sugars formed are estimated by method of Bertrand. Finds that amylases from the same genera but of different varieties show the same susceptibility to temperature, and that all the amylases examined were completely inactivated by heating in aqueous solution for 1 hour at 75°.

Abstract in *Jour. soc. chem. ind.*, 1924, v. 43, p. 109B; *Chem. Zentr.*, 1924, Bd. 1, p. 1047.

3060. **Ernstroem,** Efr. Über die Abhängigkeit der Temperaturempfindlichkeit der Malzamylase von der Acidität. (Biochemische Zeitschrift, Berlin, 1923, Bd. 141, p. 40–41.) **PPB**

Determines relative reaction velocities, as measured by sugar formation, for a number of enzyme solutions, which have been heated for 1 hour at 55° in solutions of varying acidity. Results show that least enzyme destruction occurs at pH 5.2.

3061. **Gyotoku,** K., and J. Ohhashi. The amylase of saliva and pancreatic juice. (Japan medical world, Tokyo, 1923, v. 3, p. 107.)

Available in Library of the New York Academy of Medicine.

Using a definite phosphate buffer solution the authors found the optimum temperature for the amylase action of both sa-

Amylases, continued.

Optimum and Inactivating Temperatures, continued.

liva and pancreatic juice to be 53–55°, without a marked decrease in activity at 60°. — *Chem. abst.*

3062. **Miyake,** Koji, and Mitsuji Ito. On lethal temperature of koji-diastase in aquatic solution and the recovery of its action after heating. (Journal of biochemistry, Tokyo, Japan, 1923, v. 2, p. 255–270.)

Available in Library of the New York Academy of Medicine.

When the saccharogenic activity is completely destroyed by heating to the lethal temperature, there is no return of activity. When heated below the lethal temperature a portion of the saccharogenic activity may be restored if the sample is preserved at room temperature.

Abstract in *Chem. abst.*, 1923, v. 17, p. 1806.

3063. **Lecoq,** Raoul, and S. Wary. La farine de malt et la pratique du maltage des amylacés et crus. (Journal de pharmacie et de chimie, Paris, 1924, série 7, tome 30, p. 231–236.)

Available in Library of the New York Academy of Medicine.

With raw or cooked starches, an optimum of 30% of malt flour is required for practically complete saccharification, at 75° for all raw starches and for cooked barley starch; at 60° for all other cooked starches. In all cases, the activity reaches a maximum in 15 minutes, then becomes nil.

Also in *Société de chimie biologique, Bulletin,* Paris, 1925, tome 7, p. 26–30.

Abstract in *Jour. soc. chem. ind.*, 1924, v. 43, p. 958B; *Chem. Zentr.*, 1924, Bd. 2, p. 2560.

3064. **Lüers,** Heinrich, and Paul Lorinser. Über die Hitze- und Strahlungsinaktivierung der Malzamylase. (Biochemische Zeitschrift, Berlin, 1924, Bd. 144, p. 212–218.) **PPB**

The zone of maximum stability against heat is shifted to a somewhat higher pH with higher concentrations of acetate buffer. Gelatin, egg-albumin, gum arabic, and maltose itself exhibit protective action against the inactivation of malt amylase by heat. Differences are shown between thermo-inactivation and inactivation by irradiation with ultra-violet light. "The two have nothing in common from a physical-chemical standpoint." — *Chem. abst.*

Abstract in *Jour. chem. soc.*, 1924, v. 126, part 1, p. 468; *Chem. Zentr.*, 1924, Bd. 1, p. 2157.

3065. **Miyake,** Koji, and Mitsuji Ito. On lethal temperature of pure koji-diastase in aqueous solutions and recovery of its actio after heating. (Journal of biochemistry Tokyo, 1924, v. 3, p. 177–194.)

Available in Library of the New York Academy of Medicine.

Results are closely similar to those of entry 3062.

Abstract in *Chem. abst.*, 1924, v. 18, p. 1676.

3066. **Olsen,** Aksel G., and Morris S. Fine Influence of temperature on optimum hydrogen-ion concentration for the diasta activity of malt. (Cereal chemistry, St. Paul 1924, v. 1, p. 215–221.) **VPMA**

Water suspensions of a mixture of whea and barley flours, containing dilute acid c alkali, were digested for 60 minutes an the reducing power determined. Using temperatures and various H ion concentrations, 28 determinations were carried ou and the results expressed graphically. The optimum saccharogenic activity was foun to vary from pH 4.3 at 25° to pH 6.1 a 69°. It is suggested that this change is du to increased activity of the H ions presen and that there may be a definite "optimu pH activity." The optimum pH appears t be a linear function of the temperature; a equation is given showing relation of th optimum pH and the temperature. Result also indicate that the amyloclastic and saccharogenic processes have the same optimu pH at higher temperatures.

3066A. **Wedeman,** W. Ist die Kuhmilch diastase (Amylase) zur Erkennung de schonenden Dauerpasteurisierung geeignet? (Zeitschrift für Fleisch und Milchhygiene, Berlin, 1924, Jahrg. 35, p. 301–304.

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Conservative pasteurization of milk consists of 0.5 hours heating to 60–63°. Th absence of diastase in a milk does not necessarily indicate a previous pasteurizatio since diastase is destroyed by 0.5 hour heating to 56° and greatly reduced in its activity by exposure to 53–54°. — *Chem. abst.*

3067. **Weitz,** R., and Raoul Lecoq. Analogies entre la ptyaline et l'amylase de l'org germée. (Société de biologie, Comptes rendus, Paris, 1924, tome 91, p. 926–927.) **QA**

The temperature optimum for ptyali amylase corresponds to that for barley amylase.

3068. **Cook,** Donald H. Temperature coefficients of enzymic activity and the hea destruction of pancreatic and malt amylase (Journal of biological chemistry, Baltimor 1925, v. 65, p. 135–146.) **PP**

Abstract in *Chem. abst.*, 1925, v. 19, p. 3276.

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CIRCULATION STATISTICS FOR THE MONTH OF JULY, 1927

BRANCHES	CIRCULATION		NEW REGISTRATIONS	VOLUMES ACCESSIONED
	HOME USE (VOLUMES)	READERS OF REFERENCE BOOKS		
MANHATTAN				
Central Building:				
Central Circulation	47,990	---	650	381
Children's Room	2,392	2,604	56	80
Extension Division*	32,910	---	981	806
Library for the Blind	3,184	---	20	80
East Broadway, 33	7,153	550	70	471
East Broadway, 192	20,409	1,123	207	833
Rivington street, 61	13,769	---	162	1,122
East Houston street, 388	17,177	1,114	145	765
Leroy street, 66	8,153	233	83	631
8th street, 135 Second avenue	10,187	324	77	77
10th street, 331 East	19,177	274	106	1,390
13th street, 251 West	9,369	1,213	107	215
23rd street, 228 East	7,717	429	129	66
23rd street, 209 West	8,527	1,730	182	375
36th street, 303 East	6,724	541	87	113
40th street, 457 West	6,192	143	74	165
50th street, 564 Lexington avenue	6,340	293	73	86
51st street, 742 Tenth avenue	9,084	218	125	1,468
58th Street, 121 East	10,175	900	151	189
58th " 121 " Music Library	1,631	1,124	---	163
67th street, 328 East	11,179	1,000	137	851
69th street, 190 Amsterdam avenue	9,586	350	86	402
77th street, 1465 Avenue A	12,180	68	78	607
79th street, 222 East	13,735	378	148	404
81st street, 444 Amsterdam avenue	11,996	796	215	107
96th street, 112 East	21,948	1,365	130	605
100th street, 206 West	16,820	410	237	142
110th street, 174 East	19,851	928	289	1,345
115th street, 203 West	14,456	275	168	573
124th street, 9 West	9,970	623	144	226
125th street, 224 East	7,290	325	97	112
125th street, 518 West	14,960	630	303	442
135th street, 103 West	9,137	3,035	169	333
145th street, 503 West	16,778	1,010	202	493
St. Nicholas avenue, 1000	13,761	745	150	1,209
179th street, 535 West	20,892	786	199	421
THE BRONX				
140th street, 321 East	16,881	912	213	627
Morris avenue, 910	14,626	371	171	92
160th street, 761 East	28,918	2,533	446	506
168th street, 78 West	9,461	866	172	778
169th street, 610 East	28,482	1,060	641	218
176th street and Washington avenue	34,313	2,132	577	897
Bainbridge avenue, 2556	28,722	911	420	635
Kingsbridge avenue, 3041	5,159	261	91	111
RICHMOND				
St. George	6,907	1,114	84	429
Port Richmond	10,564	315	147	302
Stapleton	7,203	130	70	99
Tottenville	3,561	28	45	120
Totals	667,596	36,170	9,314	22,562

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demia das Sciencias de isboa	7	4
ed Map Corporation (1 map)		
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en S. Trounstine Foundation	2	
useido Press	1	
duras, Biblioteca Nacional	1	1
and. Ministry of Industries Commerce	1	
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-Chine. Gouverneur Géral	2	1
n Imperial Earthquake Instigation Committee	3	
nan, Mrs. George (304 phograph)	1	

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Magyar Nemzeti Muzeum	1	
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Marx-Engels-Institut	14	58
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Savage, Mrs. Mary T.	1	
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History of The New York Public Library, by H. M. Lydenberg. 1923	$2.00
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Facts for the Public	.05
Central Building Guide	.05
Questions About Your Library (General Information about the Library)	Free
For Sightseers. Central Building	Free

PERIODICALS

Annual Report of The New York Public Library. (A limited number are given free upon request.)

Bulletin of The New York Public Library. Published monthly. Chiefly devoted to the Reference Department. Bibliography, news of the Library, reprints of manuscripts, descriptions of new accessions. $1.00 a year; current single numbers for 10 cents. Back numbers at advanced rates.

Branch Library Book News. A selected list of new additions to the Circulation Department, with other lists and articles. Published monthly, except in July and August. For sale at the Branches and at the Inquiry Desk. 2 cents a copy; 25 cents a year, postpaid.

New Technical Books. A selected list of books on industrial arts and engineering, recently added to the Library. Published quarterly. 25 cents a year, postpaid.

Municipal Reference Library Notes. Published weekly except during July and August, for circulation among the officials and employees of the City of New York. Price: $2.00 a year; 5 cents a copy. Apply at Room 512, Municipal Building.

LIST OF BOOKS IN THE LIBRARY RELATING TO VARIOUS TOPICS, TEXTS PRINTED FROM MANUSCRIPTS OWNED BY THE LIBRARY, ETC.

REFERENCE DEPARTMENT

	PRICE
Almanacs, A list of New York, 1694–1850. 1921	1.00
American Interoceanic Canals. A list of references. 1916	.30
American-Romani Vocabulary, by Albert Thomas Sinclair. 1915	.05
Armenia and the Armenians. A list of references. 1919	.30
Article of Faith, An, by Hiller C. Wellman. 1919	.05
Assyria and Babylonia. A list of references. 1918	.45
Astor Library, Catalogue of the. 8 volumes. Sewed. Per volume	5.00
Automobile Tires. A list of references. 1923	.10
Avery Collection, Handbook of. 1901. 84 p.	.50
Avery Collection, Handbook of — Supplement: Additions of Prints, 1901–1920. 1921	.15
Avesta and Romani, by Albert Thomas Sinclair. 1916	.05
Beadle Collection of Dime Novels. 1922	.50
Beaumarchais, Editions of, in New York City. 1925	.15
Berlin and the Prussian Court in 1798. From a ms. journal of Thomas Boylston Adams. 1916	.15
Billings, Dr. John Shaw, Memorial Meeting in honor of the late. 1913	.10
British Genealogy and Local History, List of works relating to. 1910	1.15
City Planning and Allied Topics, Select list of works relating to. 1913	.15

	PRICE
r Photography. 1924	.75
mbus. Letter of Columbus on the iscovery of America. Facsimile f the pictorial edition, with a new nd literal translation, and a com- lete reprint of the four oldest Latin editions. 1892. Cloth	.50
mencement Addresses by Stephen H. Olin and Carl B. Roden. 1924	.10
Compensations, by Asa Don Dick- nson. 1922	.05
se of the U. S. Brig *Argus* in 1813. ournal of Surgeon James Inder- vick. 1917	.10
ds and Druidism. A list of refer- nces. 1920	.05
American Children's Books, 682–1840. 1927	.05
American Poetry, 1610 to 1820. list of works. 1917	.20
Library Development in New ork State. By George Watson ole. 1927	.10
-Device in Literature. By El- ridge Colby. 1920	.25
t, Ancient. Sources of informa- ion. 1925	2.75
et Collection of Mss., Prints, etc., atalogue of. Sheets. 1900	5.00
Collection of New York City iews. 1925	.75
oating on the Yellowstone, 1877. y Fred G. Bond. 1925	.25
Music of the Western Hemi- phere. 1925	.50
ens & Gardening. A selected list f books. 1927	.10
gy, Mineralogy and Palæontology f New Jersey, List of works on. 916	.15
es in Carniola and Carinthia, by lbert Thomas Sinclair. 1917	.05
es of Monastir, by Rev. Lewis ond. 1917	.05
y George and the Single Tax. 926	.50
age of the Modern Printer, by argaret B. Stillwell. 1916	.05
rical Printing Club, Publications f the. (List and prices furnished pon application.)	
rical Prints and Early Views of merican Cities. Catalogue of xhibition. 1917	.05
oft, Thomas, A Bibliography of. y Elbridge Colby. 1922	.60

	PRICE
Holt, John — Printer and Postmaster. 1920	.10
Hudson, Henry, The Hudson River, Robert Fulton and Steam Navigation, List of prints, books, manuscripts, etc., relating to. 1909	.30
A Hundred Years of Grand Opera in New York, 1825–1925. A record of performances. 1927	1.00
The Illustrated Book. Notes on an exhibition. 1919	.15
Illustrated Books of the Past Four Centuries. A record of the exhibition in 1919. 1920	.50
Inks, Chemistry and Manufacture of. 1926	.75
Insulating Oil. A list of references. 1927	.50
Inventory of the Rensselaerswyck Manuscripts. 1924	.25
Irvingiana, The Seligman Collection of. 1926	.25
Isle de Bourbon (Réunion) Documents, 1701–1710. Printed from the original manuscript in the Library. 1909	.20
Japanese-American Relations. A list of works. 1921	.40
The Jewish Division in the Reference Department. 1926	Free
Jewish Life in Oriental Countries. A list of books and manuscripts exhibited. 1927	.10
Journalism. A bibliography. 1924	2.00
Joys of Librarianship, by Arthur E. Bostwick. 1918	.05
Kennan Collection. By Abraham Yarmolinsky. 1921	.10
Latin-American Periodicals Current in the Reference Department. 1920	.05
Letters of American Clergymen, 1711 to 1860. 1917	.05
Letters of American Physicians and Surgeons. 1919	.05
The Librarian Himself, by H. L. Koopman. 1916	.05
Librarian as a Unifier, by Andrew Keogh. 1915	.05
Library Tonic, by George Parker Winship. 1917	.05
Lycanthropy. A list of works. 1920	.05
Macpherson's Ossian and the Ossianic Controversy. A contribution towards a bibliography. 1926	.25

	PRICE
The Manuscript Division, by Victor Hugo Paltsits. 1915	.15
Mountaineering. Selected list. 1916	.05
Music Publishers in New York City before 1850. A directory. 1917	.10
Nationalization of Coal Mines. 1920	.10
Naval Architecture and Shipbuilding. A list of references. 1919	.20
The New York Public Library and the Business Man. 1923	Free
The New York Tercentenary. An exhibition of the history of New Netherland, 1524–1674. 1926	.30
Newspapers and Official Gazettes, Checklist of. 1915	1.85
Numismatics. List of works. 1914	.65
Opera Plots, Index to. 1927	.75
Orlando Gibbons Tercentenary, by Jeffrey Mark. 1926	.15
Oxy-Acetylene Welding. List. 1914	.15
Pageants in Great Britain and the United States. A list of references 1916	.15
Paintings, Catalogue of, in the picture galleries of the Library. 1927	.10
Persia, List of works relating to. 1915	.50
The Photostat in Reference Work. 1925	.15
The Pitcairn Bible. 1924	.15
Prints and their Production: Supplement. 1917	.05
Provençal Literature & Language. 1925	3.00
Robinson Locke Dramatic Collection. 1925	.10
Romani and Dard, by George F. Black. 1916	.05
Russian, other Slavonic and Baltic Periodicals, A list of. 1916	.15
Schoolroom Decoration. A list of references. 1917	.05
Scotland. A list of works. 1916	3.00
Selenium. A list of references, 1817–1925. 1927	.65

	PRI
Shakespeareana, Catalogue of Exhibition of, compiled by Henrietta C. Bartlett. 1916	1.0
The Soul of the Library, by J. I. Wyer. 1923	.0
Spalding Baseball Collection. 1922	.2
Stauffer Print Collection, by Charles Allen Munn. 1916	.0
Storage Batteries. A list of references, 1900–1915. 1915	.1
Submarines. A list of references. 1918	.3
Superstructures, by W. N. C. Carlton. 1918	.0
Tilden, S. J. Letters and Literary Memorials, edited by John Bigelow. 2 v. 1908	6.0
Tilden, S. J. Writings and Speeches, edited by John Bigelow. 2 v. 1885	6.0
Timothy Dexter and His "Pickle for the Knowing Ones." 1922	.1
To Nebraska in '57. A Diary of Erastus F. Beadle. 1923	2.0
Torpedoes. A list of references. 1917	.3
The Walt Whitman Exhibition. By Emory Holloway. 1925	Fre
War Memorials. A list. 1919	.0
War Taxation, 1914–1917. A list of references. 1917	.0
Washington Eulogies. A checklist. 1916	.2
Washington's Note Book. Selections from a newly discovered manuscript, edited by Victor Hugo Paltsits. 1920	.0
What Did Macaulay Say About America? Text of four letters to Henry S. Randall. 1925	.4
What's the Matter with the Public Library? By E. L. Pearson. 1922	Fre
Why They Came to the Library. 1920	Fre
Winthrop, Theodore, Bibliographical notes on, by Elbridge Colby. 1917	.0
Winthrop Books, Plates of the, by Elbridge Colby. 1918	.0

MUNICIPAL REFERENCE LIBRARY

Publications to be obtained at the Municipal Reference Library, Room 512, Municipal Building.

	PRI
Guide Posts on the Road to Health; A list of books	.1
Teaching Citizenship via the Movies. A survey of civic motion pictures	.1
Visualizing Citizenship	.1
What to Read on New York City Government. A list of references	.0

CIRCULATION DEPARTMENT

lications to be obtained at any Branch Library, or from the Chief of the Circulation Department, 476 Fifth Avenue. Publications given free unless otherwise stated.

Library Book News. *See* Periodicals.

LISTS OF BOOKS FOR ADULTS

Collection

of Interest to Women Voters

gue of Books for the Blind in Revised aille. Grades One, Two and Three. vember, 1921; Supplements, Decem- r, 1922, January, 1925

gue of Books for the Blind in Revised aille. Grade One-and-a-Half. Novem- r, 1921; Supplements, October, 1924; ay, 1925

gue of Books for the Blind in the oon type. November, 1921; Supple- nts, December, 1922, October, 1924.

gue of Music Scores in the Braille pe. July, 1922; Supplement, October, 26.

nas Exhibit

t Periodicals and Newspapers on File the Branches

Tales for Grown-up Readers

Piano Music

y Training

"The New York of the Novelists"

Old-Fashioned Novels

Plays of Thirteen Countries

Poetry of the Supernatural

Polish Book List

Romans à Clef; A List of Novels with Characters based on Real Persons. 2 cents

Sailor's Yarns. 2 cents

Stories of Romance and Imagination

Stories of the Sea. 5 cents

Supplement to the Catalogue of Music for the Blind. Music Scores in the American Braille and New York Point Types

Wanderers and Vagabonds

LISTS FOR CHILDREN

Favorite Stories of the Library Reading Clubs

Journeys to Foreign Lands

LISTS FOR ADULTS AND CHILDREN

New York City and the Development of Trade

Sea and Shore

The Shakespearian Festival

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Central Building, 476 Fifth Avenue, contains general administrative offices of the whol system, all Divisions of the Reference Department, and the Central Circulation Branch Central Children's Room, Library for the Blind, and the Extension Division.

Municipal Reference Branch, Room 512, Municipal Building. (Free for reference.)

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MANHATTAN

33 East Broadway. (Chatham Square.)
192 East Broadway. (Seward Park.)
61 Rivington Street.
388 E. Houston St. (Hamilton Fish Park.)
66 Leroy Street. (Hudson Park.)
135 Second Avenue. Near Eighth Street. (Ottendorfer.)
331 East 10th Street. (Tompkins Square.)
251 West 13th Street. (Jackson Square.)
228 East 23rd Street. (Epiphany.)
209 West 23rd Street. (Muhlenberg.)
303 East 36th Street. (St. Gabriel's Park.)
457 West 40th Street.
564 Lexington Avenue. (Cathedral.)
742 Tenth Avenue. Near 51st Street. (Columbus.)
121 East 58th Street.
328 East 67th Street.
190 Amsterdam Avenue. Near 69th Street. (Riverside.)
1465 Avenue A. Near 78th St. (Webster.)
222 East 79th Street. (Yorkville.)
444 Amsterdam Avenue. Near 81st Street. (St. Agnes.)
112 East 96th Street.
206 West 100th Street. (Bloomingdale.)
174 East 110th Street. (Aguilar.)
203 West 115th Street.
116th Street and Amsterdam Avenue. Room 108a, Columbia University Library. (Columbia Sub-branch.)
9 West 124th Street. (Harlem Library.)
224 East 125th Street.
518 West 125th Street. (George Bruce.)
103 West 135th Street.
503 West 145th Street. (Hamilton Grange.
1000 St. Nicholas Avenue. Cor. 160th Street (Washington Heights.)
535 West 179th Street. (Fort Washington.
215 Sherman Avenue. Near 207th Street. (Inwood Sub-branch.)

THE BRONX

321 East 140th Street. (Mott Haven.)
761 East 160th Street. (Woodstock.)
910 Morris Avenue. Corner 162nd Street (Melrose.)
78 West 168th Street. (High Bridge.)
610 East 169th Street. (Morrisania.)
1866 Washington Avenue. Cor. 176th Street (Tremont.)
80 West 181st Street. (University Height Sub-branch.)
1741 Wallace Ave. (Van Nest Sub-branch.)
2556 Bainbridge Avenue. (Fordham.)
3041 Kingsbridge Avenue. Near 230th Stree (Kingsbridge.)
3917 White Plains Road. Near 223rd Stree (Williamsbridge Sub-branch.)
325 City Island Avenue. (City Island Sub branch.)

RICHMOND

5 Central Avenue, Staten Island. (St. George.)
75 Bennett Street. (Port Richmond.)
85 State Street. (West New Brighto Sub-branch.)
132 Canal Street. (Stapleton.)
7430 Amboy Road. (Tottenville.)
56 Gifford's Lane. (Gr't Kills Sub-branch.
180 Rose Avenue. (New Dorp Sub-branch.